JAMAICA

ANNUAL REPORT

OF THE

MEDICAL DEPARTMENT

FOR THE

YEAR ENDING 31st DECEMBER, 1931.

Ordered by His Excellency the Governor to be Printed.

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MEDICAL DEPARTMENT.

Report for the year ended 31st December, 1931.

I.—ADMINISTRATION.

(a) Establishment, including principal appointments, new appointments, transfers, etc.

Medical Staff.

1 Principal Medical Officer.
1 Senior Sanitary Medical Officer.
2 Port Health Officers.
1 Senior Medical Officer, Public Hospital, Kingston.
5 Resident Medical Officers, Public Hospital, Kingston.
1 Dental Surgeon, Public Hospital, Kingston (part-time).
3 Supernumerary Medical Officers.
1 Bacteriologist and Pathologist.
1 Radiologist (part-time).
1 Medical Superintendent, Lunatic Asylum.
4 Assistant Medical Officers, Lunatic Asylum.
1 Visiting Surgeon, Jubilee Maternity Hospital.
44 District Medical Officers.
1 Director, Malaria Commission.
2 Medical Officers, Tuberculosis Survey and Clinic.
1 Surgeon, St. Catherine District Prison (part-time).
12 Health Officers (Central Government).
6 Health Officers (Parochial Board officials).
2 Medical Officers, Hookworm Commission.

Nursing Staff.

1 Matron, Public Hospital, Kingston.
1 Assistant Matron, Public Hospital, Kingston.
1 Matron, Jubliee Maternity Hospital, Kingston.
1 Assistant Matron, Jubilee Maternity Hospital, Kingston.
1 Matron, Lunatic Asylum.
1 Assistant Matron, Lunatic Asylum.
1 Matron, Lepers' Home.
19 Matrons in Public General Hospitals.
12 Nursing Sisters, Public Hospital, Kingston.
91 Nurses and Probationers, Public Hospital, Kingston.
3 Nursing Sisters, Jubilee Maternity Hospital.
14 Nurses and Probationers, Maternity Hospital.
186 Nurses and Probationers in Public General Hospitals.
87 Female Nurses, Lunatic Asylum.
100 Male Attendants, Lunatic Asylum.

Subordinate Medical and Sanitary Staff.

2 Overseers of Works, Hookworm Commission.
23 Assistants, Hookworm Commission.
2 Technicians, Malaria Commission.
6 Sanitary Inspectors, Malaria Commission.
114 Other Sanitary Inspectors (Parochial Board officials).
4 Laboratory Assistants.
1 Laboratory Washer.
1 Dispenser, Public Hospital, Kingston.
1 Assistant Dispenser, Public Hospital, Kingston.
1 Dispenser, V. D. Clinic, Public Hospital, Kingston.
17 Dispensers in Public General Hospitals.
1 Dispenser, Lunatic Asylum.
1 Superintendent and Dispenser, Lepers' Home.
1 Warden, Public Hospital, Kingtson.
3 Supernumerary Dispensers.
1 Superintendent, Quarantine Station.

There are in addition to above, cooks, washers, labourers, porters, storemen, watchmen, mechanics, carpenters, etc.

Clerical Staff.

1 Chief Clerk.
1 First Class Clerk.
1 Medical Storekeeper (also Secretary, Quarantine Board).
1 Second Class Clerk.
5 Assistants.
2 Assistant Storekeepers.
1 Typist and Stenographer.

Bureau of Health Education.

(International Health Board of Rockefeller Foundation).

1 Medical Director (representative of the Foundation in Jamaica).
1 Secretary.
1 Typist and Stenographer.

New Appointments.

Dr. K. L. Evans, Government Bacteriologist and Pathologist (acting).
Dr. M. S. Golding, Supernumerary Medical Officer.
Dr. H. E. McDonald, Supernumerary Medical Officer.
(The appointment of 3rd Supernumerary Medical Officer was vacant at the end of the year).
Dr. F. H. N. Cruchley, Health Officer, Portland.
Dr. C. E. Pengelley, Health Officer, Manchester (acting).
Dr. K. G. W. James, District Medical Officer, Duncans.
Dr. M. M. Lopez, District Medical Officer, Linstead (acting).
Dr. R. A. S. Cory, Medical Officer, Tuberculosis Survey and Clinic. (Rockefeller Foundation.)

Transfers.

Dr. S. R. M. Gordon, from Kingston, Public Hospital to be D.M.O., Port Maria.
Dr. L. St. C. Ferguson, from D.M.O., Duncans to staff of Kingston Public Hospital.
Dr. F. C. Wright, from Supernumerary Medical Officer to be D.M.O., Glengoffe.
Dr. H. H. James, from D.M.O., Glengoffe to the staff of the Lunatic Asylum, Kingston.

Retirements.

Dr. G. Hargreaves, D.M.O., Mandeville.
Dr. L. M. Clark, D.M.O., Linstead.

Resignations.

Dr. A. W. Grace, Government Bacteriologist and Pathologist.
Dr. G. E. Valentine, Assistant Medical Officer, Lunatic Asylum.

Deaths.

Dr. L. A. Crooks, Health Officer, St. Andrew.

(b) Financial.

Expenditure—

	£	s.	d.
Medical General Administration:			
Personal Emoluments	39,857	15	11
Other Charges	18,616	4	5
Medical Hospitals and Lepers' Home:			
Personal Emoluments	30,043	12	7
Other Charges	48,314	10	2
Lunatic Asylum:			
Personal Emoluments	21,551	11	7
Other Charges	20,460	13	0
Total Expenditure	£178,844	7	8
Total Expenditure of Whole Colony	£2,259,639	0	0
Percentage of Expenditure on Medical Department	7.8%		
Revenue from Fees, etc.	£6,683	8	0

II.—PUBLIC HEALTH.

(a) GENERAL REMARKS—

The year 1931 is likely to be remembered for the excessive rainfall in many parts of the Island and for the effects in the Colony of the world-wide depression in trade. The rainfall resulted in an increase of Malaria in many places, notably in Trelawny, where it became a serious epidemic. There was, however, no increase in those areas in which the Malaria Commission was engaged in anti-Malaria work. There was also an increase in Yaws which is always far more prevalent in wet districts. In other respects the general health of the Colony was good during the year.

The economic situation called for utmost economy and the much needed additions and improvements to many of the Public Hospitals had to be deferred. The very conditions which made these economies so necessary also caused an increased demand on the services of the Department. Many people who, in times of prosperity, can afford to consult private practitioners are unable to do so in times of depression and so increase the numbers seeking aid at the Government Institutions.

Vital Statistics.—There has been a steady decrease in the death rate of the Colony during the past ten years. In 1921 it was 28 per thousand. In 1930 it had fallen to 17 per thousand which was the lowest that had ever been recorded. Conditions in 1931 were in several respects so unfavourable that an increase was expected. It is satisfactory to be able to report that the rate only increased to 18 per thousand which was the rate in 1929, and at that time was the lowest on record.

The infantile mortality is recorded as the number of infants who die before attaining the age of 1 year for every 1,000 births. The rate for 1930 was 141, the lowest on record. In 1931, the figure went up to 153, but this is lower than the 1929 rate which was 160. The mortality rate for children under 5 years of age has also increased slightly from 193 to 214.

The birth rate for 1931 was 34 per thousand. The excess of births over deaths for the year was therefore 16 per thousand. In other words, the population increased during the year by about 16,000 as the population is now slightly over one million.

The total population of 1,050,667 consisted of 509,465 males and 541,202 females. The general death-rate was 18.65, that of males being 19.04, and that of females 17.87. The birth-rate was 34.81. Of the births 71.76% were illegitimate. The following return is taken from the Registrar General's Return of Causes of Deaths:—

The Puerperal State.	No.	Medically Certified.
Accidents of Pregnancy	25	23
Puerperal Haemorrhage	7	7
Other Accidents of Childbirth	55	25
Puerperal Sepsis	44	41
Puerperal phlegmasisa alba dolens, embolism and sudden death	2	2
Puerperal albuminuria and convulsions	59	46
Puerperal Insanity	1	1
	193	145

This gives a maternal mortality rate of 5.33 per 1,000 births. It is noticeable that, of these 193 deaths, 145 were certified by medical practitioners. This is 75%, but of the total deaths from all causes only 33% were medically certified. The two groups "Fever (not otherwise defined)" and "Other ill-defined and not specified causes," together totalled 3,890 of which only 27 less than 1%, were medically certified. It is very probable that some of those in these groups should have been included under the heading "The Puerperal State." The true maternal mortality rate is therefore probably higher than the figure given above.

District Medical Officers:—The number of Medical districts remained throughout the year, 44. On the 31st December, 1931, the number of District Medical Officers serving under the old terms of appointment had been reduced to 17. These officers receive, in most districts, £200 per annum. All are paid fees for treatment of yaws, for vaccinations, for attendance at Courts and for various other duties. All are allowed private practice. 27 District Medical Officers are serving under the new terms. These officers are, after a preliminary period of six months, appointed to the Government Medical Service and are liable for service in any District to which the Government may assign them. In 20 of the Districts they receive

£400 per annum, a travelling allowance of £50 and are required to perform all official duties without fees. They are permitted private practice on the understanding that it shall not interfere at any time with the prompt and efficient performance of their official duties. Private practice is not allowed in seven of the Districts. These are large districts with important hospitals and the official duties are quite sufficient to occupy the officer's whole time. The salary of these whole-time Districts is £600 by annual increments of £25 to £800 with unfurnished quarters or an allowance of £100 per annum in lieu of quarters and a traveling allowance of £100 per annum.

Medical Officers of Health—Formerly the Medical Officers of Health were appointed and paid by the Local Boards of Health which are, under the Public Health Law, the Parochial Boards or the Council of the Kingston and St. Andrew Corporation. In most cases these were private practitioners and there were several in each parish. The Medical Committee of the Legislative Council, which reported in 1929, recommended that there should be one qualified Medical Officer of Health for each parish; that he should be appointed and paid by the Central Board of Health and that he should not be permitted private practice. At the end of 1931 there were whole-time Medical Officers of Health, paid by the Central Board of Health, in the parishes of Kingston and St. Andrew, St. Mary, Trelawny, St. Catherine, Clarendon, Portland, Hanover, St. Elizabeth, St. James; part-time Medical Officers of Health paid by the Central Board of Health in St. Thomas and Manchester. The only two parishes in which the old system still continues are Westmoreland and St. Ann.

Hookworm Commission:—The two Sanitation Units and the two Treatment Units continued their routine work throughout the year. The Sanitation Units, each in charge of an Overseer of Works paid by the Central Board of Health, worked in the parishes of Trelawny, St. James and Westmoreland. The Treatment Units worked in Manchester and St. Thomas. The principle adopted is to select certain areas in a parish and for the Sanitation Unit to remain in these areas until every home, school and public building is adequately sanitated. On completion of this the sanitation of the rest of the parish is taken over by the Parochial Board. A Treatment Unit follows the Sanitation Unit as soon as one is available. All inhabitants of the selected area are examined and treated.

The work of the Hookworm Commission is now in its eleventh year. It will cease to exist as a separate organisation in the course of the next year or two and all sanitation and treatment will be carried on by the Medical Officer of Health and his Staff.

The total amount expended by the Central Government on this work during the year was £7,194 9s. 6d.

A detailed report will be found in Appendix I.

Malaria Commission:—Most of the endemic centres of Malaria were dealt with in 1930 and in 1931 work was extended and the following areas were under control;—Golden Grove Caymanas, Vere, Black River, Montego Bay, Oracabessa and Annotto Bay. The rainfall during the year was much above the average, but the incidence of the disease showed no increase at all in these areas in which control measures were in force. The spleen index and the blood index continued to fall and were much lower than the figures obtained in the survey of 1928, before control measures were begun. The excessive rainfall resulted, however, in very serious results in some parts of the Island which were not regarded as endemic centres, and in which no control measures had been adopted on account of the previous low incidence of the disease. There was a severe epidemic in the Falmouth area where there were 3,800 cases and about 120 deaths. A smaller epidemic occurred in the Red Hills area of St. Andrew. In both of these epidemics special measures had to be taken by the Central Board of Health.

The Central Government spent £3,398 11s. 2d. in the routine work of the Commission and £322 13s. 2d. on the epidemic in the Falmouth area to 31.12.31.

A detailed report will be found in Appendix II.

Tuberculosis Commission:—The work of the Kingston Tuberculosis Dispensary continued to increase. It was visited by 2,275 people who were examined and there were 4,556 visits from old patients. Of the new patients who came for examination 647 were found to have the disease. The nurses visited the homes of 6,035 patients during the year.

The Parochial Boards of St. James, St. Ann and St. Mary, have built special wards at their Poor Houses for tubercular cases and the Kingston and St. Andrew Corporation have completed a very good building for this purpose. There are Dispensaries in charge of the Medical Officers of Health in the parishes of St. Catherine, St. James, Trelawny, St. Mary, St. Andrew, Clarendon and Portland. A survey of the entire population of an area in Kingston has been conducted by the officers of the Dispensary. The number examined up to the end of the year was 1,286. These came from 492 households. 18 cases of active disease and 103 of latent disease were found. A similar survey was carried out in a rural area in Trelawny. A detailed report of the work is given in Appendix III.

Other Public Health Work:—Reference to this will be found in Appendices IV and V.

(i)—GENERAL DISEASES—

Malignant Disease:—215 cases were treated in the Hospitals of the Colony with 33 deaths. This is an increase over last year, but is no indication that cancer is increasing in Jamaica. It is much more probably due to the increasing readiness of the people to seek Hospital aid in serious illness.

Diabetes:—50 cases were treated in the Hospitals with 12 deaths. Last year the figures were 36 and 11 deaths.

Pellagra and *Beri-beri* are very rarely met with in Hospitals, but cases of the former are not uncommon in Poor Houses and in the Asylum.

Diseases of the Nervous System account for many admissions and deaths in the Hospitals and the chronic forms are frequently met with in the Poor Houses. There were 399 admissions with 65 deaths in the Hospitals.

Diseases of the Eye:—A large proportion of these cases are treated as out-patients of which there were 593 in the Hospitals outside Kingston. 149 cases were treated in the wards in Kingston and 173 in the District Hospitals.

Diseases of the Circulatory System:—426 cases were treated in Kingston Hospital with 53 deaths. In the District Hospitals there were 355 cases with 65 deaths.

Diseases of Respiratory System:—The returns for Kingston Hospital were 373 cases with 61 deaths. In the District Hospitals there were 545 cases with 85 deaths.

There were 36 cases of lobar pneumonia in Kingston Hospital with 11 deaths. Of other types of pneumonia there were 53 cases with 18 deaths.

Diseases of the Digestive System:—This group of diseases accounts for a very large number of out-patients at all the Hospitals. The numbers treated in the wards were 1,299 with 210 deaths.

Disease of the Genito-Urinary System (Non-Venereal):—There were 1,009 admissions to Kingston Hospital with 70 deaths. In the District Hospitals there were 1,805 admissions and 124 deaths.

Accidents and Wound cases:—There were 718 admissions to Kingston Hospital with 43 deaths. The admissions to District Hospitals were 2,596 of whom 48 died.

(ii) Communicable Diseases—

Enteric Fevers:—900 cases were notified under the Public Health Act. The number in 1930 was 928. 244 cases were treated in Kingston General Hospital and 383 in the District Hospitals; these numbers in 1930 were 264 and 370 respectively.

The notification of this disease is, I think, carried out more thoroughly now than in previous years due, to a great extent, to the activities of the whole-time Medical Officers of Health in many of the parishes. Although these figures do not show any appreciable change on the previous year yet almost every District Medical Officer reports that there was less enteric fever than usual during the year.

Malaria:—224 cases with 5 deaths were treated in Kingston General Hospital. In the District Hospitals, 2,437 cases were treated with 114 deaths. These figures are much higher than in 1930, and most of the District Medical Officers report an increase, but those stationed in areas where control work is carried out, report no increase or a continued diminution both in number of cases and severity of attack.

Pulmonary Tuberculosis.—67 cases were treated in Kingston General Hospital and 98 cases in the District Hospitals. The numbers in 1930 were 68 and 87 respectively.

The reports of District Medical Officers on the prevalence and spread of the disease vary greatly. Many report that cases are rare and that there does not appear to be any increase. Others report that the diseasea ppears to be increasing. There is no doubt that the public are taking a great interest in the subject and are to some extent learning that early diagnosis and rational treatment offer good prospect of arrest or cure; that the hopeless, fatalistic outlook is giving way to a more intelligent view as is well shewn in a brief report of the Tuberculosis Commission included in Appendix III.

1,327 cases were notified under the Public Health Act as compared with 1,082 in 1930.

Venereal Diseases:—The Reports of District Medical Officers do not, on the whole, indicate any increase in these diseases. Many still emphasize the ignorance displayed and the delay in getting treatment until complications have arisen. The neglect to continue treatment until cure of the disease, and not merely cure of the symptoms is completed, is very common. 394 cases of syphilitic and 351 cases of gonococcal infection were treated as in-patients at Kingston Hospital. In the District Hospitals the numbers were 654 in-patients for syphilitic infections, and 678 in-patients for gonococcal infections.

Yaws:—27,398 cases were treated during the year. The drugs used were Bismuth Sodium Tartrate, Neo and Sulph-arsphenamine and Halarsol. Very promising results have been obtained with this last preparation which is convenient for use in district work.

Small-pox:—The Colony remained free from small-pox throughout the year. 22,982 vaccinations were performed.

Scarlet Fever:—157 cases of this disease were notified during the year. Most of these were in the early months of the year, only 28 being reported after 30th June. The type of the disease is very mild and there can be little doubt that many cases are never seen by a medical man. This renders control a very difficult matter.

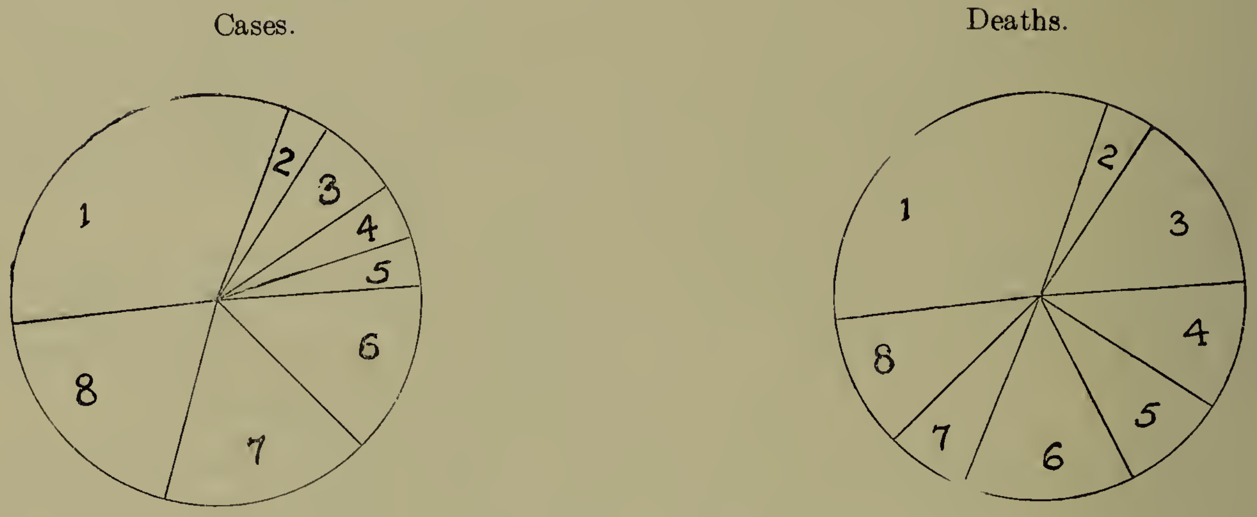
Dysentery:—The incidence of this disease is very small for a tropical country. There were only 16 cases with 3 deaths in Kingston Hospital and 27 cases with 4 deaths in the District Hospitals. There were 58 notifications under the Public Health Law. The number of notifications in previous years were 257 in 1928, 142 in 1929 and 64 in 1930.

B. M. Wilson,

Superintending Medical Officer.

(b) Comparative Diagram of Disease Groups treated in all Government Hospitals.

	Cases.	Deaths.
1. Communicable Diseases	32.7%	32.1%
2. General Diseases	3.3	3.9
3. Diseases of Digestive System	6.4	14.8
4. Diseases of Respiratory System ..	4.5	10.3
5. Diseases of Circulatory System ..	3.9	8.3
6. Genito-Urinary Diseases (Non-venereal) ..	13.7	13.6
7. External Causes	16.5	6.4
8. Other Diseases	19.0	10.6
Cases	100.0	100.0



III.—SANITATION.

I.—ADMINISTRATION.

(a) *Personnel.*—The Local Board of Health continued to be the Unit of Health administration in the Island. The Central Board of Health exercised general supervision and acted in an advisory capacity to the Government on matters pertaining to the Public Health.

During the period 28th March to 30th September, the Senior Sanitary Medical Officer acted as Superintending Medical Officer and Chairman, Central Board of Health, in addition to performing his substantive duties.

In the course of the year a full-time Medical Officer of Health was appointed to the parish of Portland and, in the case of the parish of Manchester, the Central Board of Health took over the payment and control of the Health Officer. It is with great regret that the deaths of Dr. Crooks (late M.O.H., St. Andrew) and of Dr. Meikle (late M.O.H. Manchester) fall to be recorded.

Dr. F. H. N. Cruchley, after one year's post-graduate study at the School of Hygiene and Public Health, Johns Hopkins University, was appointed M.O.H., Portland. Dr. K. Leigh Evans was awarded the degree of Master of Science in Bacteriology, Harvard University, and in December was appointed Acting Government Bacteriologist and Pathologist.

Dr. W. J. Branday, formerly Medical Officer Hookworm Treatment Unit No. 1 proceeded in September to Baltimore for study at the Johns Hopkins University.

The number of full-time Sanitary Inspectors, who are officers of the Local Boards of Health, is increasing year by year. Parochial Boards are pursuing the policy of making new appointments whole-time, selecting therefor those trained at the School for Sanitary Inspectors, when available, and of creating full-time in place of part-time appointments whenever opportunity is presented.

The attendance of Members of the Central Board of Health at its 14 meetings were:—

The Hon. Dr. B. M. Wilson, Chairman ..	7
Dr. J. A. Henderson, Acting Chairman ..	7
The Hon. Dr. Lawson Gifford	13
Dr. D. J. Phillips	14
Dr. S. Lockett	3
Mr. J. M. Nethersole	5
Mr. N. Roots	12
Col. Caddell, R.A.M.C.	2

The Senior Sanitary Medical Officer was present on all occasions.

Table showing the Staff employed by each Local Board of Health and Hookworm Units as at 31.12.31.

Parish.	Health Officers.		Sanitary Inspectors.				Others.
			C.S.I.	S.OI.		Hookworm.	
	A.	B.		A.	B.		
Kingston	1	..	1 (1)	14 (8)	..	..	6
St. Andrew ..	1	..	1 (1)	6 (4)	2	..	9
St. Thomas ..	..	1	..	..	7	5 (5)	5
Portland ..							
1.1.31—30.9.31 ..	..	2	1 (1)	..	3 (1)	2 (1)	1
1.10.31—31.12.31 ..	1	..					
St. Mary	1	..	1 (1)	7 (4)	..	..	2 (1)
St. Ann	..	4	..	3 (3)	5	4	..
Trelawny	1	..	..	4 (4)	..	..	4
St. James	1	..	1 (1)	3 (1)	2	..	2
Hanover	1	..	..	..	4 (1)	..	3
Westmoreland ..	..	2	..	1	5	..	8
St. Elizabeth ..	1	..	..	3 (3)	..	..	1
Manchester ..	..	1	1 (1)	2 (1)	..	1	6
Clarendon	1	..	1 (1)	6 (1)	..	4	6
St. Catherine ..	1	..	1 (1)	7 (4)	3 (1)	..	5
Hookworm Unit No. 1 ..	1	..	..	..	..	12 (8)	5
" " No. 2 ..	1	..	..	..	..	11 (5)	5
Port Royal ..	..	1	..	..	1	..	..

Note.—The figures in brackets show the number of persons who hold a Certificate from the Sanitary Inspectors' School or from the Royal Sanitary Institute.
A. Full-time Officers.
B. Part-time Officers.

(b) *Financial*—Public Health Expenditure for 1931.

	Kingston.	St. Andrew.	St. Thomas.	Portland.	St. Mary.	St. Ann.	Trelawny.	St. James.	Hanover.	Westmoreland.	St. Elizabeth.	Manchester.	Clarendon.	St. Catherine.	Port Royal.	
	£	£	£	£	£	£	£	£	£	£	£	£	£	£	£	£
1. Administration—																
H. O. Salaries ..	800	667	300	563	794	480	769	604	600	400	600	381	694	732	600	
T.A. ..	150	150	100	150	200	280	200	100	100	..	150	100	150	200	..	
S. I. Salaries ..	2917	1090	198	281	1168	780	600	574	84	180	240	449	800	988	52	
T.A. ..	441	267		130	280	110	158	..	..	..	60	142	150	350	..	
Clerks ..	122	78	..	13	145	..	110	39	..	..	..	..	..	120	..	
Messengers ..	31	26	..	2	26	..	20	..	..	..	2	..	14	21	..	
Total 1 ..	4461	2278	598	1139	2613	1650	1857	1317	784	580	1052	1072	1808	2411	652	
2. Cleansing ..	13019	5748	509	845	1975	799	235	1056	190	327	383	240	317	1605	89	
3. I. D. Prevention ..	690	858	1031	334	67	560	285	976	3	23	9	11	274	153	5	
4. Cemeteries ..	1511	108	91	180	184	33	33	..	30	31	8	285	15	131	23	
5. Child Welfare ..	612	135	38	12	24	20	79	137	120	217	21	400	..	21	..	
6. Conservancy ..	* ..	*..	77	46	124	..	..	..	..	18	21	90	37	..	915	
7. Drainage ..	* ..	*..	283	582	163	714	35	162	..	228	..	..	..	672	..	
8. Water Supply ..	125	62	354	572	130	246	1132	113	189	38	237	2057	..	2784	..	
9. Miscellaneous ..	387	136	..	76	558	1	122	110	162	..	..	94	163	1329	..	
Total 2 ..	16344	7047	2383	2647	3225	2373	1921	2554	694	882	679	3177	806	6695	312	
Grand Total ..	20805	9325	2981	3786	5838	4023	3778	3871	1478	1462	1731	4249	2614	9106	964	76011

*Included in Cleansing.

The Central Government spent the following sums on matters that affect the promotion of health in the Colony:—

	£	s.	d.
Central Board of Health Expenses	10,399	14	2
Quarantine Expenses	1,076	1	3
Hookworm Campaign	7,194	9	6
Venereal Disease	1,308	11	11
Yaws	1,888	6	9
Vaccination Fees	1,433	14	3
Infectious Disease Control	1,226	18	5
Child Welfare Association	1,061	7	2
Malaria Commission	3,398	11	2
Bureau of Health Education	267	14	2
Schools Dental Clinic	600	10	3
Training School for Sanitary Inspectors	77	9	0
	29,933	8	0

The amount paid by the Rockefeller Foundation in inaugurating newer health administrative methods and in carrying out the various Campaigns and Surveys duing 1931 was £7,309.

(c) *Legal.*—The following Laws affecting Public Health were enacted in 1931.

No. 11. A Law further to amend the Kingston Building Law (Law 5 of 1883).

No. 31. A Law to validate the acts and proceedings of the Central Board of Health.

The following is a list of all Notices in the Jamaica Gazette affecting Public Health.

718. Darliston, Market at—opening of sanctioned.
49. Health Reports (Co-operative) November 1930, H.E. directs publication of.
730. Llandewey, Market at—opening of sanctioned.
837. Lluidas Vale, Market at—opening of sanctioned.
903. Annotto Bay Water Supply District—Water rates for.
352. Dornoch Water Supply District—alteration of limits.
870. Ewarton, Limits for purposes of Water Supply.
871. Ewarton Water Supply District—Water Rate for.
119. Falmouth Market (Albert George Market)—Amendment of Schedule of fees.
847. Mandeville Public Cemetery—Rules governing.
214. Markets Manchester—production of tickets by vendors.
907. Market Fees—St. Mary.
846. Stewart Town Water Supply District—Limits of.
596. Port Maria Water Supply Districts—Limits of.
776. Public Sanitary Conveniences, Montego Bay—Rules governing.
904. Steer Town and Chalky Hill Water Supply Districts—Limits of.
459. Tanks and Reservoirs, Manchester—reduction of fees for water from.
381. Tanks and Reservoirs, St. Elizabeth—reduction of fees for water from.
915. Ulster Spring Water Supply District—Limits of.
215. Water Rates—Port Antonio.
485. Health Regulations, St. Ann.
156. Health Regulations, St. Catherine.
406. Pratique granting to vessels carrying Cruise Passengers.
436. Water Court—Mountain River—appointment of.
810. Beckford and Crawle Springs (in Clarendon) declared to contribute to Public Water Supplies.
708. Guinea Grass Gulley and Moravia Springs in Clarendon, declared to contribute to Public Water Supplies.
917. Hector's River, Williamsfield River, Barracks River and Black River (portions of) declared to contribute to Public Water Supplies.
707. Orange Hill and Pass Gully Springs (Clarendon) declared to contribute to Public Water Supply.
582. Orange Hill and Pass Gully Springs at Nine Turns, Clarendon, contribution to Public Water Supply.
128. Yabba Spring in the No. 4 Division of Portland—Contribution to Public Water Supply.

(d) Special Enquiries and Reports.

1. Incidence of Malaria in Trelawny, St. James, Westmoreland, St. Catherine, St. Andrew and Hanover.
2. Incidence of Enteric Fever in St. Mary, St. James and St. Catherine.
3. Incidence of Pulmonary Tuberculosis in Trelawny, St. James and Clarendon.
4. Imported case of Adenitis, Quarantine Station, Port Royal.
5. Suspected cases of Alastrim in St. Catherine (2) Port Antonio (1) Trelawny (1) and St. Ann (1)
6. Water Supply Kingston area.
7. Sanitary conditions of Elementary and Infant Government Schools.

2. VITAL STATISTICS.

Full details will be found in the Annual Report of the Registrar General, who has kindly furnished the tables included in this Section.

Population.—The necessary credit for the taking of a Census of the population in 1931 was not available. The estimation of the population was therefore based on the addition to the estimated population at 31st December, 1930, of the number of births registered and the number of persons who arrived in the Island during the year, and the deduction therefrom of the number of deaths registered and the number of persons who left the Island during the same period.

BIRTHS, DEATHS AND INFANT MORTALITY.

The following table gives as reported by the Registrar General the increase which has taken place in the population during the decennium 1921-30 and the year 1931, and also sets out the number of births and deaths with the rates per 1,000 of the population. The infantile mortality is also given,

Years.		Estimated Population 31st December.	Births Registered.	Birth Rates.	Deaths Registered.	Death Rates.	Infantile Mortality.
1921*	..	871,114	30,064	34.9	24,383	28.3	197
1922	..	885,692	32,816	37.3	20,153	22.9	177
1923	..	894,413	34,077	38.2	20,278	22.7	171
1924	..	904,405	33,132	36.8	19,592	21.7	161
1925	..	916,620	31,567	34.6	19,562	21.4	173
1926	..	936,927	35,784	38.5	19,072	10.5	168
1927	..	953,768	32,910	34.8	20,015	21.1	173
1928	..	974,742	34,616	35.8	19,062	19.7	157
1929	..	994,419	33,788	34.2	18,167	18.4	160
1930	..	1,022,152	37,340	37	17,214	17.0	141
1931	..	1,050,667	36,173	34.81	19,377	18.65	153

*Census Year.

The average annual number of births during the period 1921-1930 was 33,609. In 1931, the number of births registered was 36,173, or 1,167 fewer than in 1930, which has the highest figure for the past eleven years.

Throughout the decennium 1921-30 an almost uninterrupted decline in the general death rate took place. In 1927, Malaria was prevalent, and the rise in the death rate that year was attributed thereto. During the year 1931, an increase in the amount of Malaria again occurred and the death rate recorded is 1.6 per 1,000 higher than that of 1930. There were 19,377 deaths registered in 1931, as compared with 17,214 in the previous year.

The higher Death Rate in 1931, was general throughout the Island, with one exception, namely the Parish of St. Andrew. The Parishes in which ratios considerably higher than those of the previous year obtained, were St. James, St. Catherine, Trelawny Hanover—in all of which Malaria was prevalent, and Kingston. The death rate was lowest during the second quarter of the year.

In the Annual Report for 1930, reference was made to the gradual decline in the Infantile Mortality during the last decade. The ratio for 1930 (141) remains the lowest yet recorded. In the year 1931, there was an increased rate of 12 per 1,000 on the previous year. The higher Infantile Mortality was more or less general throughout the Island, the parishes of Portland and St. Ann excepted, in which these rates were practically the same as in 1930. The ratios were highest in St. James, Trelawny and Hanover, while the increase in this mortality compared with last year was considerable in St. Catherine, Clarendon and St. Elizabeth.

The figure for deaths under 5 years of age per 1000 registered births was 214 in 1931, as compared with 193 in 1930. The higher rates in this category bear a close relation to those of the Infantile Mortality.

Classification of causes of deaths. Information has been received from the Registrar General that in 67 per cent. of the deaths registered during the year, the causes of deaths were not medically certified. It would therefore be unwise at present to comment on the classification given in Table G. of the Annual Report of the Registrar General for 1931.

In three parishes with which the Rockefeller Foundation co-operates, copies of certificates in the Death Registers are forwarded regularly by District Registrars to Medical Officers of Health. For financial reasons this procedure cannot be extended at present to the other parishes in the Island. The Registrar General, however, has kindly agreed that Medical Officers of Health may have access to Death Registers for the purpose of information concerning the number of deaths at the various age periods, any particular causes of deaths, deaths from Infectious Diseases, the Puerperal State, etc.

					Infantile Mortality.	
					Death Rate per 100 Births	
Parish.	Estimated Population 31st December, 1931.	Birth Rate per 1,000 of Population 1931.	Death Rate per 1,000 of Population 1931.	Illegitimate Rate per 100 Births, 1931.	under 1 yr. 1931.	under 5 yrs. 1931.
Kingston ..	72,169	41.44	24.04	66.85	12.95	17.36
Port Royal ..	1,062	19.90	10.42	76.19	..	4.76
St. Andrew ..	59,233	35.90	25.50	62.94	16.03	22.53
St. Thomas ..	48,257	35.20	21.41	80.88	16.15	23.49
Portland ..	57,172	32.90	19.16	71.67	14.69	21.32
St. Mary ..	84,160	34.09	17.67	76.87	14.21	19.54
St. Ann ..	86,966	34.00	15.45	64.12	12.73	18.05
Trelawny ..	40,868	38.67	22.02	73.37	20.06	27.07
St. James ..	49,442	40.56	26.00	78.33	21.91	28.63
Hanover ..	45,778	38.34	20.24	77.45	17.38	23.80
Westmoreland	81,539	35.02	17.72	68.29	15.88	23.16
St. Elizabeth	95,807	36.10	17.29	72.66	16.21	21.74
Manchester ..	77,336	35.24	15.10	66.12	13.00	17.30
Clarendon ..	100,512	37.08	16.96	70.70	14.40	20.11
St. Catherine	112,035	33.65	19.70	78.67	15.16	22.86
	1,012,336					
Add excess Arrivals over Departures from Census Day 5th April, 1931, to 31st December, 1931.	38,331					
Whole Island	1,050,667	34.81	18.65	71.76	15.38	21.44

Deaths registered in the several parishes of Jamaica in each quarter from the 1st January to 31st December, 1931.

Parish.	Males and Females.					Males	Females	Annual rate per 1,000 persons living.				
	March Qr. 1931	June Qr. 1931	Sept. Qr. 1931	Dec. Qr. 1931	Total in year.	in Year.	in year	March Qr. 1931	June Qr. 1931	Sept. Qr. 1931	Dec. Qr. 1931	Year 1931
Kingston ..	372	421	493	438	1,724	856	868	20.75	23.48	27.50	24.43	24.04
Port Royal ..	3	2	3	3	11	3	8	11.37	7.58	11.37	11.37	10.42
St. Andrew ..	399	404	390	311	1,504	754	750	27.06	27.40	26.45	21.09	25.50
St. Thomas ..	259	248	250	271	1,028	537	491	21.58	20.66	20.83	22.58	21.41
Portland ..	315	240	285	250	1,090	581	509	22.15	16.88	20.04	17.58	19.16
St. Mary ..	438	336	341	362	1,477	771	706	20.96	16.07	16.31	17.32	17.67
St. Ann ..	357	323	334	318	1,332	672	660	16.57	14.99	15.50	14.76	15.45
Trelawny ..	197	181	300	216	894	423	471	19.41	17.83	29.55	21.28	22.02
St. James ..	303	320	327	328	1,278	611	667	24.65	26.04	26.61	26.69	26.00
Hanover ..	239	217	211	253	920	423	497	21.03	19.09	18.56	22.26	20.24
Westmoreland ..	381	324	372	356	1,433	690	743	18.84	15.97	18.40	17.61	17.72
St. Elizabeth ..	429	370	422	422	1,643	819	824	18.06	15.57	17.76	17.76	17.29
Manchester ..	300	293	282	281	1,156	546	610	15.67	15.31	14.73	14.68	15.10
Clarendon ..	463	382	401	444	1,690	869	821	18.59	15.33	16.10	17.82	16.96
St. Catherine ..	551	454	573	619	2,197	1,149	1,048	19.76	16.28	19.66	22.20	19.70
Whole Island ..	5,006	4,515	4,984	4,872	19,377	9,704	9,673	19.27	17.38	19.18	18.75	18.65

F.—DEATHS AT DIFFERENT AGES REGISTERED DURING

Parish.	Under one year.				1—		2—		3—		4—		Under Five Years.				5—		10—		15—	
	M.	F.	Total	Rate per 100 Births.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total	Rate per 100 Births.	M.	F.	M.	F.	M.	F.
Kingston ..	203	182	385	12.95	52	43	7	12	5	4	4	4	271	245	516	17.36	22	6	10	15	21	39
Port Royal	1	..	1	..		..	..	..	..	..	..	..	1	..	1	4.76	..	1	..	..	..	..
St. Andrew ..	182	158	340	16.03	54	45	5	12	8	7	6	1	255	223	478	22.53	7	7	8	9	19	35
St. Thomas	152	121	273	16.15	38	42	10	12	7	4	4	7	211	186	397	23.49	10	12	9	5	14	17
Portland ..	140	135	275	14.69	41	47	11	6	6	5	5	3	203	196	399	21.32	11	13	6	9	18	21
St. Mary ..	195	210	405	14.21	45	50	18	15	6	8	6	4	270	287	557	19.54	18	16	13	14	28	22
St. Ann ..	201	172	373	12.73	65	35	14	14	7	9	7	5	294	235	529	18.05	25	20	7	10	16	34
Trelawny	175	140	315	20.06	42	27	9	12	3	6	2	9	231	194	425	27.07	14	8	9	8	6	10
St. James	227	210	437	21.91	43	40	9	14	9	6	7	6	295	276	571	28.63	23	18	13	7	18	19
Hanover ..	151	152	303	17.38	35	39	13	9	4	8	1	3	204	211	415	23.80	12	16	8	7	9	16
Westmoreland ..	244	206	450	15.88	66	61	21	16	12	9	12	9	355	301	656	23.16	31	25	11	3	9	25
St. Elizabeth ..	288	269	557	16.21	49	42	22	17	16	15	15	14	390	357	747	21.74	36	27	17	10	11	25
Manchester ..	181	170	351	13.00	32	35	15	12	6	2	9	5	243	224	467	17.30	17	9	6	6	8	20
Clarendon ..	288	244	532	14.40	67	71	15	20	16	6	7	9	393	350	743	20.11	20	18	15	21	12	23
St. Catherine ..	303	266	569	15.16	112	82	27	21	13	15	9	10	464	394	858	22.86	27	38	19	13	20	48
Whole Island ..	2931	2635	5566	15.38	741	659	196	192	118	104	94	89	4080	3679	7759	21.44	273	234	151	137	209	354
Total—Males and Females	5,566				1,400		388		222		183		7,759				507		288		563	
Rate per 100 deaths, year 1931 ..	28.7				7.2		2.0		1.1		1.0		40.0				2.6		1.5		2.9	
Rate per 100 deaths, year 1930 ..	30.7				7.0		2.0		1.3		1.0		42.0				2.3		1.6		2.9	

THE YEAR ENDED 31st DECEMBER, 1931.

20—		25—		35—		45—		55—		65—		75—		85—		95 and upwards		Not ascertained.		Total all Ages.		Grand Total.
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
62	65	86	108	104	77	102	80	93	88	46	47	29	55	10	38	..	4	..	1	856	868	1,724
..	..	..	..	1	1	1	2	..	2	..	2	..	..	..	..	..	..	..	..	3	8	11
31	41	61	73	76	71	74	73	87	69	80	59	40	56	10	25	6	9	..	..	754	750	1,504
21	28	61	35	54	44	48	44	29	29	30	41	37	29	8	14	4	7	1	..	537	491	1,028
27	44	42	36	57	41	56	27	64	35	44	29	37	36	15	20	1	2	..	..	581	509	1,090
42	49	95	68	61	45	65	42	61	37	53	50	44	43	13	26	8	7	..	..	771	706	1,477
25	47	36	44	30	36	45	50	46	43	48	43	64	52	27	34	9	12	..	..	672	660	1,332
14	15	22	34	18	23	19	36	24	32	30	49	25	40	7	17	4	5	..	..	423	471	894
40	50	56	57	30	50	31	29	34	42	28	45	33	43	5	26	5	5	..	..	611	667	1,278
13	20	28	38	31	24	25	29	20	29	22	39	37	44	11	17	3	7	..	..	423	497	920
23	36	39	48	29	62	42	45	47	36	40	59	40	56	18	36	5	11	1	..	690	743	1,433
25	30	42	47	45	45	40	46	67	58	59	60	59	65	25	36	3	18	..	..	819	824	1,643
15	27	27	57	30	32	42	45	41	36	40	56	52	58	21	32	4	7	..	..	546	610	1,156
28	33	71	65	67	62	70	57	50	46	59	55	57	58	22	26	3	7	2	..	869	821	1,690
54	51	113	101	105	83	93	65	97	70	72	59	56	74	23	43	5	8	1	1	1,149	1,048	2,197
420	536	779	811	738	697	753	670	760	652	651	693	610	709	215	390	60	109	5	2	9,704	9,673	19,377
956		1,590		1,435		1,423		1,412		1,344		1,319		605		169		7		19,377		
4.9		8.2		7.5		7.3		7.3		6.9		6.8		3.2		.87		.03		100.00		
4.7		8.3		7.5		7.0		6.7		7.0		6.3		2.9		0.78		0.02		100.00		

3. INFECTIOUS AND COMMUNICABLE DISEASES.

2,787 cases were notified compared with 2,486 cases in 1930. The increase is principally due to higher notifications of Pulmonary Tuberculosis and of Scarlet Fever.

Notification of cases of, and deaths from Infectious Diseases prescribed by Law 18 of 1925 on which medical practitioners attend, are not yet in all respects satisfactory.

During the year 5 suspected cases of Alastrim were reported; 2 from St. Catherine, 1 from Portland, Trelawny and St. Ann, respectively. After further observation of these cases, their clinical features did not prove to be those of Alastrim.

The number of vaccinations done throughout the year was 22,982.

TABLE—1931 NOTIFICATIONS.

——	Typhoid.	Para Typhoid.	Dysentery.	Pulmonary Tuberculosis.	Leprosy.	Chicken Pox.	Diphtheria.	Scarlet Fever.	Erysipelas.	Cerebro-Spinal Meningitis.	Poliomyelitis.	Encephalitis Lethargica.	Puerperal Fever.
January ..	45	..	2	91	2	4	..	31	..	1	1	..	..
February ..	52	..	3	98	2	9	1	30	3	..	..	..	2
March ..	53	..	6	114	3	13	..	14	..	8	..	1	3
April ..	22	..	5	95	2	66	1	16	..	3	..	..	3
May ..	65	..	3	133	3	48	1	17	3	2	1	..	4
June ..	86	..	3	138	1	28	1	21	3	2	1	..	3
July ..	125	..	5	123	2	2	2	13	1	1	..	..	3
August ..	106	1	4	103	3	4	2	6	..	2	..	..	1
September ..	95	..	5	110	3	..	3	3	..	2	1	1	2
October ..	103	..	3	121	2	7	..	3	..	..	1	..	5
November ..	78	..	10	90	3	28	1	..	1	3	..	1	1
December	69	..	9	111	1	24	2	3	..	1	..	..	..
Total ..	899	1	58	1,327	27	233	14	157	11	25	5	3	27
By Parishes:													
Kingston ..	156	..	5	452	3	31	3	41	..	4	1	..	..
St. Andrew	80	..	7	171	2	48	..	20	1	2	..	..	3
St. Thomas	50	..	8	54	..	2	1	2	1	2	..	..	2
Portland ..	44	..	1	44	..	1	1	3	..	2	..	..	1
St. Mary ..	77	..	4	86	..	17	..	27	..	..	..	..	1
St. Ann ..	50	..	..	108	..	24	1	6	..	..	..	..	2
Trelawny ..	23	..	..	43	7	9	..	9	..	2	..	..	..
St. James ..	136	1	6	100	1	1	7	22	5	6	2	2	4
Hanover ..	3	..	3	17	..	..	..	6	..	..	..	..	5
Westmoreland ..	47	..	3	14	1	3	..	..	1	2	..	..	2
St. Elizabeth	55	..	4	37	3	2	..	5	2	3	1	1	2
Manchester	38	..	2	35	2	40	..	3	1	..	..	..	2
Clarendon ..	58	..	7	87	3	22	..	3	1	..	1	..	3
St. Catherine	82	..	7	74	5	30	1	10	..	2	..	..	..
Pt. Royal ..	..	..	1	2	..	..	..	..	..	..	..	..	..
From ship board ..	..	..	..	3	..	3	..	..	..	..	..	..	..
Total ..	899	1	58	1,327	27	233	14	157	11	25	5	3	27

Enteric Fever—900 cases and 110 deaths were notified. The cases were most numerous in Kingston (157) and St. James (136), St. Catherine, St. Andrew and St. Mary came next, each with a notified incidence almost equal to the other.

In Kingston, although the number of notifications remains high, there has been a marked decrease during the past five years. The incidence in St. James calls for special mention. During June and July 53 cases and 10 deaths were notified. The outbreak occurred in the first instance among children attending the Government Elementary School, Montego Bay which is situated in the "Barracks" area. The disease became distributed in the southern part of the town where most of these children resided. There after the spread took place mainly to the rural districts of Moy Hall, Johns Hall and Spring Mount. Careful enquiries into the source of infection were made by the Medical Officer of Health, who is definitely of opinion that Enteric was imported by personnel of a circus company which operated in the "Barracks,' area about two weeks previously. The great majority of cases were treated in the Public General Hospital, Montego Bay, and the incidence gradually ceased.

Preventive measures adopted throughout the Island included (a) hospitalization of cases as far as practicable, (b) sanitary precautions, (c) inoculation of contacts and others, (d) education conducted by the Health and Sanitary Officers, (e) improvements in sanitation.

The amount of Typhoid vaccine issued was 17,300 ccs. or 5,766 adult doses.

The following table sets out the number of reported cases since 1925:

Year.	1925	1926	1927	1928	1929	1930	1931
Notified Cases	850	1,009	1,189	1,254	1,325	925	899

Age, incidence and age at death, by sexes, of all notifications during the year 1931:—

Males.

Age.	0–	5–	10–	15–	20–	25–	35—	45–	55–	65–	75 and over.	Not stated.
Cases	31	77	62	50	102	83	26	19	7	3	..	3
Deaths	4	6	4	4	13	9	4	2	2	1	..	..
					Females.							
Cases	24	71	73	75	70	70	27	20	3	3	..	..
Deaths	1	3	7	9	21	7	7	4	2	..	..	..

The Dysenteries.—58 cases of all classes of Dysenteries and 5 Deaths were notified. There is reason to believe that these figures are incomplete. Confirmation by bacteriological methods was not infrequently impracticable. Nevertheless it is considered that there is indication of a gradual decline in prevalence attributable to the construction of Deep Pit Fly-Proof Latrines, and attention given to the control of food and drink.

Scarlet Fever continued to be prevalent particularly during the first and second quarters of the year. The number of cases notified from July to December was small. The disease was mild in type and the reported incidence was greatest in Kingston, St. Mary, St. James and St. Andrew. 157 cases were recorded with 2 deaths. In all probability many cases have occurred which were not seen by a medical practitioner.

INFECTIOUS DISEASES OF THE NERVOUS SYSTEM.

Cerebro-Spinal-Meningitis.—25 cases with 7 deaths were reported. The number of notified cases is the highest recorded during the past nine years. The parish of St. James in which a small localized outbreak took place in 1928, accounted for 6 cases.

Poliomyelitis shows but little variation during the last five years. There were 5 cases.

Encephalitis Lethargica.—Three cases were notified in two parishes:—St. James 2, St. Elizabeth 1.

Tuberculosis—1,327 cases of Pulmonary Tuberculosis were reported to the Central Board of Health. The notified incidence of this disease has gradually increased, and the figure for 1931, is the highest yet recorded. In this connection it must again be mentioned that public interest in and concern for Pulmonary Tuberculosis continue to develop, General Practitioners and Medical Officers of Health are eager in the detection of and search for cases, and imporvement in notifications of this infectious disease is undoubted. These are factors which contribute to and in part explain the rise in reported cases.

The Corporate area of Kingston and St. Andrew, and the parishes of St. Ann, St. James, Clarendon, St. Mary and St. Catherine provided the larger numbers of notifications.

The following Table shows the number of cases intimated annually since 1912 when the disease became notifiable in the Island:—

1912 (part of year)	181	1922	532
1913	606	1923	478
1914	649	1924	603
1915	565	1925	552
1916	659	1926	619
1917	742	1927	797
1918	867	1928	933
1919	788	1929	1,007
1920	691	1930	1,082
1921	597	1931	1,327

The number of deaths from Pulmonary Tuberculosis reported to the Central Board of Health was 177. The Registrar General's figures for the deaths from Pulmonary Tuberculosis and from Phthisis since 1920 are given below. The rate evinced a steady diminution till 1926, since when it has remained practically stationary, rising somewhat in 1931. The general death rate has also diminished over this period.

Year.	No. of deaths.	Rate per 10,000.
1920	1,694	19.78
1921	1,584	18.44
1922	1,442	16.40
1923	1,339	15.40
1924	1,295	14.44
1925	1,301	14.29
1926	1,206	12.97
1927	1,295	13.68
1928	1,245	12.88
1929	1,245	12.63
1930	1,297	12.85
1931	1,456	14.01

The following table shows the age and sex incidence of cases and deaths among the notified cases:—

Males.

Age.	0–	5–	10–	15–	20–	25–	35–	45–	55–	65–	75 and Over.	Not stated.
Cases	13	5	17	55	119	209	122	61	32	6	3	2
Deaths	2	..	1	5	11	24	21	8	3	2	..	..
Females.												
Cases	12	13	37	90	147	119	85	58	25	10	6	1
Deaths	1	2	1	18	24	27	14	6	2	4	1	..

Progress in control and in measures for prevention. The work done by the Tuberculosis Commission is described in Appendix III. Jamaica is indebted to the Rockefeller Foundation for the continuation of this important Survey. The report indicates the several lines along which investigation has been systematically extended and advanced, and valuable information is thereby being compiled.

Tuberculosis Dispensaries, which existed in eight parishes at the end of the year, continued to serve as centres not only for diagnosis, observation, treatment and after-care of patients, but also for the examination of contacts, and the conduct of appropriate education. The following is an extract from the Annual Report of the M.L.H. Trelawny:—

"Tuberculosis Dispensary—Trelawny had the distinction of being the first parish outside of Kingston "to be selected by the Rockefeller Foundation for extending their study of Tuberculosis in Jamaica. This "privilege was obtained because of the interest the staff had shown in locating and following cases. With "Dr. E. W. Flahiff in charge, the dispensary has rapidly grown in popularity and, apart from the scientific "information to be obtained, it is making a deep impression on the public who are co-operating in a most "satisfactory manner. Almost without appreciating the fact themselves they are getting to know the main "points with regard to the manner of distribution and the control of the disease, as well as the modern methods "and importance of early diagnosis. Moreover, the field work of the dispensary Nurse is demonstrating "what can be accomplished by a public health nurse............"

"The programme of home visits by the Sanitary Inspectors was interrupted on account of the necessity "for concentrating the Staff on Sanitation and Malaria work; but it happened that the Survey undertaken "by the Rockefeller Foundation was begun at the time of the interruption so that the year has been one of "remarkable progress in publicity on the disease. Under Dr. Flahiff's direction the main features of the "programme of the Clinic are as follows:—(1) Visits to known cases for checking diagnosis by sputum "examination and if necessary X-ray examination. (2) Complete examination of contacts of cases including "physical and X-ray examination and tuberculin test. (3) Tuberculin tests on school children with "X-ray examination of reactors. (4) Home visits by Nurse. (5) Tuberculin tests of groups of population "such as labourers on estates. (6) Education on prevention. (7) Treatment to indigent cases."

"At first the survey was confined to Falmouth, but as the material available for study was exhausted "the work was carried over into rural settlement and parties of contact are being transported free of cost "to themselves for examination. The Clinic has received the heartiest co-operation of the public of all "classes and general disappointment is felt that the X-ray machine could not be worked on the Town Hall "electrical plant The distance to Montego Bay will prevent groups from Upper Trelawny who are "interested from taking advantage of this opportunity of specialist examination free of cost."

It is the provision of Tuberculosis Hospitals within the larger centres of population which is now urgently required, particularly for the accommodation of advanced cases. Plans have been prepared for such an institution which it is proposed to build somewhere in the vicinity of Kingston, whenever money becomes available. To begin with, there will be accommodation for 112 beds, but the site provisionally selected is sufficiently large to admit of future building extensions.

The Parochial Board of St. Mary, St. James, and the Corporation of Kingston and St. Andrew constructed isolation wards at their Alms Houses for the inmates suffering from Tuberculosis. In Manchester and Portland, similar segregation is under consideration.

The Jamaica Anti-Tuberculosis League under the presidency of Lady Stubbs continued its most valuable activities and assisted materially in the work of the Dispensaries—the first unit of a Tuberculosis scheme.

Leprosy.—27 new cases were notified, compared with 37 in 1930. There were 30 deaths at the Lepers' Home where the number of patients remaining at the end of the year was 121—63 males and 58 females.

Helminthic Diseases—An account of the Hookworm Commission will be found in Appendix I.

MALARIA AND ANTI-MALARIA MEASURES.

Incidence of Malaria. Following an unusually heavy rainfall throughout the year in most parts of the Island, there was a marked increase in the amount of Malaria. Whereas the mean rainfall of the Island over the last fifty years averaged 76 inches, that during 1931 was 91 inches. Reference to the Return of Diseases and Deaths in Public General Hospitals for 1931, indicates a very considerable increase in cases of and deaths from Malaria.

Table comparing Cases of and Deaths from Malaria in Public General Hospitals during the past five Years:—

Year.	Total No. of Malaria Cases treated in Hospitals.	Total No. of Deaths from Malaria.	Total No. of Out-patients treated for Malaria.
1927	1,529	49	2,483
1928	1,587	58	1,888
1929	1,618	68	2,278
1930	1,475	42	2,957
1931	2,661	119	4,623

The mean rainfall during each of the past five years was:—

Year.	1927	1928	1929	1930	1931
Rainfall in inches	72.45	63.21	60.22	62.13	91.53

Last year's increase both in rainfall and Malaria was not uniform throughout the Island. While there was a defined epidemic or high incidence in certain districts it is very satisfactory to be able to record that the prevalence in the seven areas which had been controlled by the Malaria Commission was decreased. The localities in which the highest incidence occured were Falmouth and lower Trelawny, the hill districts of St. James, St. Thomas-ye-Vale district of St. Catherine, Red Hills in St. Andrew, Sav.-la-Mar and the adjacent district of Westmoreland, and, to a less extent, areas in St. Thomas and Portland parishes.

The outbreaks had the following general features: they started insidiously in June, reached their height about the end of August, the disease was mostly of the malignant tertian type, relapses more common, the mortality was moderate, and Anopheles Albimanus was the prevalent mosquito. The epidemics at Lower Trelawny (Falmouth), St. Thomas-ye-Vale (St. Catherine) and Red Hills in St. Andrew, may be taken as examples.

An account of the epidemic in Falmouth and Red Hills is given in Appendix II. The M.O.H., St. Catherine describes last year's conditions as follows:—

"From July the rainfall was excessive and Sub-tertian Malaria was epidemic in several parts of the "parish, having been particularly prevalent around Linstead, Spanish Town, Old Harbour Bay and Macca "Tree. Fortunately, the number of deaths was exceptionally low for this type of the disease, except, "doubtfully in Spanish Town. Of the 85 deaths from Malaria in the parish, 54 were registered in Spanish "Town. During the year 2,000 cases were treated at the Spanish Town and Linstead Public General "Hospitals but those figures only show a small proportion as many did not consult a doctor. The M.O.H. "paid several visits to various districts in company with a D.M.O., and the conclusion was reached that "Hospital treatment (in and out patient) would be more successful than treatment centres.

"The Sanitary Inspectors made house-to-house visits around Linstead and advised all cases how to "secure treatment. Anti-Mosquito measures, in which a cessation of the rain in December must be given "a high place, resulted in a definite decrease in the number of cases. Anopheline Larvae were found at "one time or another in 72 places, sometimes im temporary rain-water pools even of small size. The "Sanitary Inspector from Guy's Hill was brought into the Linstead Area for a month to help in the control "work. Reliance was laid on cleaning vegetation from ponds and oiling; where suitable stocking with fish "was carried out, and two large ponds were drained."

It has already been mentioned that the incidence of Malaria in the seven areas which had been controlled by the Malaria Commission was reduced. This is all the more gratifying when it is recalled that these are the areas in which the rainfall is normally considerably above the average and the measure of endemicity was greater. Appendix II gives a summary of the progress achieved in each area during the year. The Malaria Commission which was directed by the Director for Jamaica of the Rockefeller Foundation, investigated the outbreaks referred to above, in addition to its routine work in the Control areas.

Anti-Malaria Measures. Vigorous measures were taken in order to lessen the amount and severity of the disease. Wherever it was practicable, swamps, pools and other collections of water concerned were either drained, or canalized and cleared of vegetation, or treated with Paris Green or oiled.

At Falmouth, where the most serious outbreak occurred, the large swamp areas presented a problem of great difficulty. The construction of a Tidal Canal, however, was of considerable assistance not only in the drainage of the western swam but also in the introduction of salt water which reduced anopheline breeding.

Free treatment with quinine was given by the District Medical Staff. In Trelawny the necessary additional staff was provided, payment of which was met by the Central Board of Health.

Routine anti-malaria work carried out by the Malaria Commission is referred to in Appendix II.

The following return shows the amount of quinine issued from the Medical Stores during 1931:—

		lbs.	ozs.
Police for their own use	Tablets	17	
Post Offices for sale	"	329	
Estates	"	3	
Parochial Boards	"	1	14
Hospitals and Asylum	"	16	8
Prisons and Reformatories	"	4	
Malaria Commission	"	2	
Under Part IV of the Public Health Law (Law 18 of 1925)	"	39	14
Hospitals and Asylum	Quinine Sulphate	237	15
Parochial Boards	.. ..	18	1
Prisons and Reformatories	" "	12	8
Under Part IV of the Public Health Law (Law 18 of 1925)	" "	34	11
		716	7

4.—Water Supplies.

The mean rainfall of 91 inches provided an improved water supply in so far as quantity was concerned.

Development and improvement were continued in several of the larger, and certain smaller towns.

Mr. Magoon, the Sanitary Engineer, provided by the Rockefeller Foundation towards the end of 1930, spent about nine months in examining and advising upon water supplies in the Island. This officer surveyed and recommended measures for the improvement of the water supplies of Kingston and Lower St. Andrew, Spanish Town, Linstead, Old Harbour, Braeton, Pimento Grove, May Pen and of Oracabessa. To him, Government, the Kingston and St. Andrew Corporation and the Parochial Boards thus assisted owe their grateful thanks.

The work completed in connection with the Kingston and Lower St. Andrew Water Works included—

(1) the installation of equipment at each of the three filter plants whereby water treated with chlorine may be measured:

(2) the installation of duplicate chlorine control apparatus with suitable points of application of the chlorine at each of the three filter plants:

(3) an important new connection at Hope and at Constant Spring, each so constructed that inspection, measurement, screening and chlorine treatment of by-passed water may be carried out:

(4) the construction of a distribution tower at Constant Spring, and of a distribution well at Hope.

Further details are given in Appendix V. Mr. Magoon, in his reports upon this water supply, proposes more extensive improvements, which are calculated to obtain the best attainable results.

The new water supplies at Port Antonio and Port Morant were completed. A duplicate chlorinating machine was installed at the Spanish Town Water Works. Progress has been made by the Parochial Boards of Westmoreland and St. Thomas in extending the distribution mains in their capital towns. Investigations were made by the Parochial Board of St. James with a view to supplementing the supply of Montego Bay.

At Linstead, the new reservoir and filter plant were in process of construction. In the parish of Trelawny, the Stewart Town Water Works were nearly completed, and the extensions to the Ulster Spring supply well advanced.

In rural areas, attention was given to protection of village water supplies from infection or pollution and a considerable number of minor improvements were undertaken.

5.—Food Supplies.

The policy whereby there is gradual application of conditions set out in the Regulations with respect to Markets, the sale of Milk and Milk Products, Bake Houses, Hawking and Street Selling, Butchers and Slaughter Houses, was maintained. Financial depression, however, has to a considerable extent delayed progress in structural improvements which are much required in many of these public establishments.

Periodic examinations of persons employed in the preparation and sale of food were continued in accordance with Regulations under Public Health Law 18, of 1925. These measures, which are carried out by Medical Officers of Health, and routine inspections made by the Health and Sanitary Staff of articles of food and drink, also of premises concerned, are leading towards the provision of the public with a wholesome food supply.

The conditions under which Milk is produced are, with a few exceptions, unsatisfactory, and call for radical improvements along the lines of the Regulations. In the Corporate Area of Kingston and St. Andrew where a Veterinarian was appointed for the examination of dairy animals, and in the parish of St. Catherine definite progress was made in this direction.

The training in Meat Inspection given at the School for Sanitary Inspectors, has been of great assistance in Meat Control by Sanitary Officer. The number of public slaughter houses throughout the Island, however, is small, and there are the usual difficulties of supervision attendant upon private slaughter houses and other places in which animals are permitted to be slaughtered for human consumption.

A tabulated statement is subjoined at the end of this Section.

6.—SANITARY SERVICES, PAROCHIAL BOARDS.

The Parochial Boards of St. James and Trelawny continued their co-operation with the Central Board of Health in the work of the Sanitation Units until December and August respectively, when, on completion of latrine construction in the demonstration areas, these Units moved into areas in Hanover and Westmoreland.

"Follow-up" work was proceeded with in St. Thomas, Portland, St. Ann, Clarendon, St. James and Manchester, and attention was paid to latrine construction and renovation throughout the Island.

The activities of "The Jamaica Hookworm Commission" are described in Appendix I. In Appendix IV an account is given of Parochial Health Departments.

The City Engineer has kindly furnished the following information in regard to the drainage of Kingston: The construction of the High Level Intercepting Sewer and of the sedimentation tanks and discharge channels to the sea, was completed during the year. This new sewer intercepts a certain account of sewerage formerly taken care of by the original drainage system. The new scheme was designed to serve the districts of Rollington Pen, Franklin Town, Allman Town, Fletcher's Land, Admiral Pen and generally the areas above North Street. The areas of Rae Town, Brown's Town, Passmore Town and the Mental Hospital form a separate project in which disposal by pumping is intended.

The usual information is tabulated at the end of this Section.

7.—MATERNITY AND CHILD WELFARE.

Reference to maternal mortality is made in Section II—Public Health, of this report.

Eighteen pupil midwives were trained at the Victoria Jubilee Maternity Hospital, Kingston, and of these thirteen obtained certificates to practise. In addition, eight candidates passed the qualifying examination and were registered under the Midwifery Law, 1919.

Several Parochial Boards subsidise trained midwives to live in specified districts and attend to the poor. The Manchester Maternity Hospital and Nursing Home, Mandeville, is supported by voluntary subscriptions and the Parochial Board. During the year 94 Maternity cases were attended in the wards. This institution is a training centre for pupil midwives and carries out external maternity service throughout the parish by a Staff of District Nurses.

The Child Welfare Association in Kingston continued to make strides in its sphere of usefulness. 724 expectant mothers were under supervision at the Pre-Natal Clinics. The confinements of these cases either took place in hospitals or were managed by medical practitioners and qualified midwives. The number of infants and children of pre-school age cared for by the Centre was 3,905, there were 21,466 attendances at the Centre, and 1,409 visits were made by the nurse to infants and children at homes. 1,696 babies were brought to the "Well" Clinics, which had one session each month.

The Creche at Montego Bay, under the auspices of the Self-Help Society, rendered valuable service, and a commencement has been made in Infant Welfare Work at Spanish Town.

Children at School age. Reports on the sanitary condition of the Elementary and Infant Schools in the parishes of Portland, St. Ann, Trelawny, St. James, Hanover, Westmoreland, Manchester and Clarendon were submitted by Medical Officers of Health to the Department of Education and the Island Medical Department. Defects in structure buildings, insufficiency of floor space per child, improvements to water supplies and latrines, and the provision of ablution accommodation are receiving the attention of the Department of Education.

An account of "School Hygiene and Dental Clinics" is given in Appendix V.

8.—EDUCATIONAL MEASURES.

The activities of the Bureau of Health Education and of the School for Sanitary Inspectors are described in Appendix V.

9.—RECOMMENDATIONS.

The Senior Sanitary Medical Officer recommends:—

1. Further facilities for bacteriological investigations in connection with Enteric Fever and the Dysenteries.
2. Extension of Anit-Malaria Measures, and of the prevention of mosquito breeding.
3. Development and improvement of water supplies.
4. Amelioration of the disposal of waste waters in such towns as Spanish Town, Falmouth.
5. The construction of a better type of abattoir in the principal towns, and the provision of a Public Slaughter House in such towns where one does not exist.
6. Development of Child Welfare Work.
7. Control of all new buildings in certain areas throughout the Island, including the adoption of standard methods of drainage.
8. Improvement schemes in respect of unhealthy areas, Kingston.

The following is a summary of the recommendations of Medical Officers of Health:—

1. The employment of full-time Sanitary Officers where these do not already exist. In certain areas, e.g. in Trelawny and St. Catherine, additional inspectors are required.
2. The increase in the number of District Nurses, notably in Kingston, St. Andrew and Port Royal. A midwife is recommended for each District in St. Andrew.
3. The provision of adequate hospital accommodation for cases of enteric fever.
4. The further development of Tuberculosis schemes, in particular the construction of segregated accommodation at Alms Houses, where such arrangements have not yet been made by Parochial Boards.
5. Extension of Malaria Control, e.g. in Westmoreland and Portland.
6. Improvements to the water supplies of Montego Bay and May Pen, and in rural areas.
7. Amelioration of the disposal of waste waters, e.g. in Port Royal, May Pen and Chapelton.
8. The abolition of deep pit latrines in certain districts of Kingston and Lower St. Andrew and their replacement by the water carriage system.
9. Additional public latrines in St. Andrew and Montego Bay.
10. The construction of a Slaughter House at Montego Bay.

11. Further accommodation for Maternity cases at the Public General Hospitals, Savanna-la-Mar and St. Ann's Bay.

12. Development of Child Welfare Work.

13. Institution of Dental Clinics in the parishs of St. Ann and Westmoreland: further development of School Medical Service.

14. Improvement schemes in respect of unhealthy areas, Kingston.

J. A. Henderson,
Senior Sanitary Medical Officer.

	Kingston.	St. Andrew.	St. Thomas.	Portland.	St. Mary.	St. Ann.	Trelawny.	St. James.	Hanover.	Westmoreland.	St. Elizabeth.	Manchester.	Clarendon.	St. Catherine.	Port Royal.
1. *Nuisance.*															
Complaints received ..	285	673	377	208	106	1,227	765	38	8	88	66	..	..	85	..
Noticcs seved ..	1,504	2,072	2,673	787	6,915	1,227	1,070	821	28	163	1,504	1,024	3,116	6,389	..
Legal Proceedings taken	10	..	51	144	..	32	286	..	7	..	..	34	195	125	..
Legal Proceedings successful ..	9	..	50	91	..	30	..	..	7	..	..	23	195	92	..
Legal Proceedings withdrawn ..	..	..	..	53	..	..	..	..	..	..	..	..	..	..	..
II.—*Infectious Diseases.*															
Visits of Enquiry, etc.	624	444	55	84	293	538	401	53	..	44	181	3	131	1,504	6
Intimations to School Boards, Teachers, &c.	..	..	8	55	2	18	..	1	..	16	72	..	..	..	..
Disinfection of Houses or Premises .	491	167	8	23	12	118	38	187	109	76	24	18	21	117	6
Disinfection of Clothing, Bedding, &c. (Sets of) ..	314	..	..	33	12	59	31	151	..	9	17	1	2	..	6
Legal Proceedings taken	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Legal Proceedings successful ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
III.—*Dairies, etc.*															
On Register at 1.1.31 ..	..	..	..	30	..	..	..	19	..	17	..	..	..	40	..
Registered in 1931 ..	60	123	..	10	..	..	..	1	..	..	..	..	..	37	..
Removed from Register in 1931 ..	10	..	..	13	..	..	..	..	..	..	..	..	..	..	..
Remaining on Register 31.12.31 ..	50	123	..	27	..	..	..	20	..	17	..	..	..	77	..
Inspections ..	1,928	1,166	340	306	..	..	..	141	..	66	18	10	59	531	..
Contraventions of Bye-Laws ..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..
Legal Proceedings taken	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Legal Proceedings successful ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
IV.—*Sale of Food and Drugs Law.*															
Samples procured for analysis ..	1	521	..	4	..	..	..	..	..	..	..	..	..	4	..
Samples certified genuine ..	1	521	..	4	..	..	..	..	..	..	..	..	..	2	..
Samples certified adulterated ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Legal Proceedings taken	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Legal Proceedings successful ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
V.—*Slaughter Houses*															
No. of Public Slaughter Houses ..	1	1	..	1	2	1	1	..	..	..	..	..	..	1	..
No. of Private Slaughter Houses ..	..	..	58	1	..	30	..	7	..	7	6	10	..	7	..
No. of inspections of above ..	44	3,561	250	166	279	812	1,419	24	..	132	128	69	..	336	..
VI.—*Unsound Food.*															
Inspections, No. of ..	11,953	119	513	566	3,968	854	2,006	374	..	447	1,116	3,425	..	7.591	3
Seizures, No. of ..	88	909	51	124	169	30	90	55	1	7	70	200	..	484	..
Legal Proceedings ..	..	11	..	..	..	..	..	..	..	..	..	2	..	..	..
Legal Proceedings successful ..	..	11	..	..	..	..	..	..	..	..	..	1	..	..	..
VII.—*Bye-Laws.*															
Inspections of—															
(a) Private Premises	79,275	27.505	3,514	3,887	39.916	20,431	11,314	6,129	4,329	1,670	3,383	155611	84,555	8,903	140
(b) Schools ..	775	682	313	147	172	930	127	127	45	105	108	129	262	323	2
(c) Markets ..	127	313	580	208	449	1,010	404	403	396	263	138	249	261	828	1
Restaurants ..	462	119	127	130	21	..	20	51	..	22	..	..	47	156	..
Grocery Stores	3,578	1,641	1,352	615	1,288	1,993	882	494	215	349	518	218	539	3,013	3

	Kingston.	St. Andrew.	St. Thomas.	Portland.	St. Mary.	St. Ann.	Trelawny.	St. James.	Hanover.	Westmoreland.	St. Elizabeth.	Manchester.	Clarendon.	St. Catherine.	Port Royal.
VII.—*Bye-Laws, contd.*															
Butchers Shops	549	567	107	..	658	339	879	167	..	98	6	..	..	..	..
Bakeries and Bread Shops	1,699	456	1,248	679	295	1,629	191	273	399	257	106	203	407	709	..
Milk Shops ..	1,897	297	82	483	..	..	..	..	..	..	..	..	..	119	..
Ice Factories ..	16	..	44	46	2	22	..	4	..	1	..	..	..	..	..
Ice Shops ..	788	467	67	241	106	50	232	..	..	29	48	..	49	338	..
Food Vendors ..	3,552	..	882	697	2,500	506	1,853	75	88	116	457	1,670	1,500	9,114	3
Confectioneries, Candies, etc. ..	..	..	24	..	..	..	..	..	..	..	..	..	..	..	..
Aerated Water Factories ..	41	..	..	3	..	..	..	18	..	..	..	4	..	..	..
Liquor Factories	16	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Breweries ..	6	..	..	..	..	..	...	..	..	..	..	..	..	..	..
Cocoanut Oil Factories ..	5	..	..		..	..	..	..	..	..	..	..	..	..	..
Biscuit Factories	5	..		..	..	..	..	..	..	..	..	..	..	..	..
Cold Storage Premises ..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sugar Factories	..	..	..	..	..	..	..	..	..	..	29	..	..	..	..
Lodging Houses and Hotels ..	750	37	16	112	22	63	35	..	..	23	46	16	45	1,019	..
The Keeping of Animals ..	404	127	126	182	48	26	..	10	..	1	32	197	..	No separate records	
Offensive Trades ..	31	42	3	5	4	47	..	8	..	3	8	..	..		
Other Shops and Trades	3,730	28	6	172	..	695	..	..	..	..	61	235	..	do.	
(d) Water Supplies	..	204	24	367	399	755	356	154	..	11	901	3	178	201	
(e) Drainage ..	79,275	163	6	414	360	310	..	116	..	..	70	..	..	..	..
(f) Mosquito Breeding—															
No. of places Anopheline larvae found	1	10	14	5	96	5	..	5	217	17	74	..	5	72	..
No. of places other ..	..	..	..	..	..	..	..	..							
Mosquito larvae found ..	867	..	24	186	430	7	..	7		10	209	39	..	398	..
No. of places treated	868	1,939	41	233	325	11	..	12	217	17	66	39	5	434	..

Fish—Fresh	69½ lbs.
Tinned	15 tins.
Cod Fish..	1,178 lbs.
Cod Roes	21 tins.
Haddock	7 tins
Herrings	1,298 tins, 16¼ brls. and 1,634¼ lbs.
Sardines	1,178 tins, 1 case and 60 lbs.
Mackerels	11 tins, 2¾ brls. and 978½ lbs.
Shad	1 brls 250 lbs.
Salmon	317 tins and 81 lbs.
Bristling (smoked or in oil) ..	7 tins
Shrimps	2 tins
Oysters	3 tins
Other canned goods	953 tins
Bread Stuffs, etc.	
Bread	57 loaves and 66¾ lbs.
Flour	1¾ brls. 43½ bags and 315 lbs.
Cornmeal	210 lbs.
Crackers	½ brl. and 20 lbs.
Bammies	63
Baking Powder	3 tins
Oatmeal	1 tin, 40 lbs.
Shredded Oats	7 packets
Milk—	
Cow's	175 quarts
Condensed	514 tins and 239 cases
Evaporated	36 tins and 15 cases
Cream	3 cases and 46 jars
Butter	8 tins and 1 lb.
Margarine	5 tins and 2½ lbs.
Lard	52 lbs.
Sugar	2 tins, 32 qrts.
Pickles	25 bottles
Cranberry Sauce	2 tins
Black Pepper	2 tins

Cheese	9½ lbs.
Potatoes	31 lbs.
Rice	2 bags, 30 lbs.
Onions	17 tins, 7 bags
Potato Pudding	5 lbs.
Corn Pudding	10¾ lbs.
Cocoanut Oil	4½ quarts
Chocolates	11 Cartons
Milk Food	4 cases
Meat, etc.	
Beef	8 carcasses, 18 partial and 7,520½ lbs.
Beef, Livers	42 partial and 7,485 lbs.
Beef, Corned	40 lbs.
Beef, Corned (in tins)	3 tins
Beef, Cow's Foot	2
Beef, Salt	1½ brls. and 15¾ lbs.
Mutton	1 partial and 83 lbs.
Pork	2 carcasses, 20 partial and 1,400 lbs.
Pork, Corned	¾ brl. and 3,993¾ lbs.
Pork, Livers	10 lbs.
Pork, Kidneys	75 lbs.
Pork and Beans	43 tins
Sausages	3 tins.
Tinned Meat	106 tins, 1 bottle and 4 jars
Ox Tongue	4 tins
Ham	220 lbs.
Ham Loaf	1 tin
Vibol Fat	2 tins
Fruits and Vegetables—	
Grapes	42 tins
Tomatoes	27 tins
Tomato Sauce	2 tins
String Beans	1 tin
Green Peas	4 tins
Fruits	1,604 tins.
Mangoes	4 doz.
Cherries	4 tins
Olives	3 bottles
Plums	8 tins
Pears	52 tins
Apricots	13 tins
Pine Apples	10 tins
Peaches	18 tins
Raisins	123 boxes and 3 packages
Cabbages	12 heads
Pawpaw	3
Asparagus Tips	26 tins
Sweet Corn	22 tins
Soup (Oxtail)	12 tins
Marmalade	6 tins
Jam	38 tins
Syrup	1 qrt.
Ice Cream Cones	22
Cod Liver Oil	1 bottle

IV.—PORT HEALTH WORK.

The Regulations of the Board have been strictly carried out and during the year, the Island has been free from Quarantinable diseases. The Quarantine Board suffered a great loss during the year in the death of Dr. C. A. H. Thomson. Dr. Thomson was a member of the Board for many years and during that period his services were always available in the interests of Quarantine. Capt. H. deB. Tupper, Harbour Master, and Dr. I. W. McLean were appointed members of the Board during the year to fill the vacancies caused by the death of Dr. Thomson and the transfer of Commander C. C. Dix, C.M.G., D.S.O. The Chairman, Dr. B. M. Wilson, was absent on leave from 28th March until 1st October and his place was filled by Dr. J. A. Henderson, Acting Superintending Medical Officer.

2. Cases of Alastrim in Belize and Small Pox in Nicaragua were reported. The Small Pox Regulations were put in force at once and no cases have arrived here. In September, Yellow Fever was reported at Cienaga, Republic of Columbia. There was, however, much doubt in regard to the diagnosis. The usual precautions for Yellow Fever were taken. In due course it was demonstrated that the cases reported were not Yellow Fever. In July a case of "Sickness" was removed from a vessel from Rangoon and placed in the Quarantine Station for observation. Laboratory investigation and clinical observation demonstrated that the case was not one of Plague.

3. The 'World Plague Situation' is about the same as stated in my last report. No new places have become infected and while none of those infected have managed to eradicate the disease, I think that it is fair to assume that the world-wide precautions have arrested the spread of the disease.

4. New Regulations were made during the year for dealing with vessels carrying Tourists. The Shipping Companies are satisfied, and it is entirely in their hands to keep the Quarantine Board also satisfied. The Sea-plane Service is working quite smoothly. The base has been changed a few times, but the Quarantine Service has met the situation right through. An Aeroplane landed at Knutsford Park during the year without arrangements for pratique having been made. The risk from such action can readily be recognized. The Air Service on account of its speed is perhaps the most potent means for spreading disease.

5. There were twenty-two "Fumigations" during the year. Fumigation is performed either by Sulphur or Cyanide as the circumstances may call for.

6. The Quarantine Station is in good working order and ready to receive passengers at any time.

7. The Boarding at Port Royal has been carried out efficiently and expeditiously and no vessel has been delayed.

(Sgd.) Charles Don,

Secretary, Quarantine Board.

V.—HOSPITALS AND DISPENSARIES.

The following is a list of the Hospitals and Institutions of the Medical Department:—

	No. of beds.
Public Hospital, Kingston	380
Maternity Hospital, Kingston	30
Public Lunatic Asylum, Kingston	1,747
Public General Hospital, Morant Bay	30
" " " Hordley	40
" " " Port Antonio	55
" " " Buff Bay	50
" " " Annotto Bay	60
" " " Port Maria	65
" " " St. Ann's Bay	40
" " " Cave Valley	12
" " " Ulster Spring	6
" " " Falmouth	25
" " " Montego Bay	70
" " " Lucea	20
" " " Sav.-la-Mar	66
" " " Black River	70
" " " Mandeville	35
" " " Lionel Town	50
" " " Chapelton	33
" " " Spanish Town	70
" " " Linstead	60
Lepers' Home, Spanish Town	120

The work of the Kingston General Hospital continues to increase. 6,005 cases were treated with 537 deaths. There were over 132,000 attendances at the out-patient Department. 2,996 operations were performed on in-patients. The number of minor operations in the out-patient department was 3,298.

In the X-ray Department 1,352 patients attended.

The work of the District Hospitals has increased a great deal in recent years. The equipment has in many cases been improved but much remains to be done both in building and equipment to bring some hospitals up to the standard of modern requirements. A great deal of good medical and surgical work done in some of the District Hospitals and the Matrons and Nursing Staffs are deserving of praise. 13,089 patients were treated in the wards with 886 deaths. The attendances at the Out-patient departments number over 42,000. The surgical work consisted of 3,325 operations of importance and 1,502 minor operations. Among the operations carried out at District Hospitals are included 47 Salpingectomies, 25 Hysterectomies and 177 Appendicectomies.

Dispensaries are established at May Pen in Clarendon, Gordon Town in St. Andrew and Negril in Westmoreland. These Dispensaries are visited daily by the District Medical Officer. There is a Nurse attached to each and she is also available for visiting cases in the neighbourhood. The number of patients who attended are:—

May Pen	288
Gordon Town	62
Negril	138

B. M. Wilson,

Superintending Medical Officer.

(a) *Report and Returns by the Senior Medical Officer, Kingston Public Hospital.*

Tables (1) and (2) show the numbers treated during the year with results, the total number being 6,005 of which 337 were still in Hospital at the end of the year.

The total number of deaths for the year from all causes was 537, viz., 290 males, 247 females.

Table (3) shows the number of deaths for the year occurring within 12–24–48–72 hours after admission.

Table (4) gives the number of Medical and Surgical cases treated for the year with results.

Table (5) gives in detail the operative work performed. The increase for this year is 319.

Table (6) shows the work carried out at the Venereal Clinic; this also shows an increase over the numbers treated in 1930.

Table (7) gives the numbers of Out Patients (including patients with authorised tickets, Eye, Ear, Nose and Throat Clinics) treated, and prescriptions dispensed showing an increase of 4,733.

The minor operations performed in the Out Patient Department have increased by 202.

The number of patients X-rayed for the year was 1,352.

The Medical Staff gave the usual course of lectures to the Nurses.

At the final examinations 17 nurses were successful and obtained certificates.

Visits were made by the Official Board of Visitors.

The patients are grateful to those who have sent books, magazines and flowers, etc.

I wish to record that I have drawn attention in my last report that the yearly increase of patients attending for treatment was a serious problem owing to the inadequate accommodation to deal with this increase. I have in this year's report shown a further increase, but no steps have been taken to relieve the congestion. The Medical and Nursing Staffs are working under very adverse conditions both in the Wards and the Out-Patient Department.

Before any modern improvements on a large scale can be made more land will have to be acquired, as it is impossible to erect any more buildings owing to lack of space.

In conclusion, I have to state that the work of the Institution has been carried out in a satisfactory manner through the loyal assistance and co-operation of the entire staff.

A. S. Westmorland,

Senior Medical Officer.

PUBLIC HOSPITAL, KINGSTON—YEAR 1931.

Table I.

	Males.	Females.	Total.
Patients remaining in Hospital, 1st Jan., 1931 ..	187	111	298
Patients admitted during the year 1931 ..	3,185	2,522	5,707
Total Patients treated ..	3,372	2,633	6,005
Of those were cured	1,949	1,549	3,498
Of those were relieved	721	529	1,250
Of those were not relieved	215	168	383
Of those died	290	247	537
Remaining in Hospital, December, 1931 ..	197	140	337
	3,372	2,633	6,005

Table II.

	Total.
Daily average number of beds occupied by male patients	196.52
Daily average number of beds occupied by female patients ..	136.43
Average stay in days of those who died, males	13.54
Average stay in days of those who died, females	11.21
Average stay in days of males discharged	24.54
Average stay in days of females discharged	21.65
Average stay in days of males remaining at end of year	29. 5
Average stay in days of females remaining at end of year ..	22.65
Longest stay of any one patient in hospital	365 days.

Table III.

Patients who died within the following hours after admission.

12		24		48		72		Total.		Remarks.
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
—	30	45	29	21	9	27	37	142	100	

Table IV.

(1) *Epidemic, Endemic and Infectious Diseases.*	Cases.	Deaths.
1. Enteric Fever	244	74
5. Malaria Fever	224	5
7. Measles	14	0
8. Scarlet Fever	1	0
9. Whooping Cough	8	0
10. Diphtheria	6	0
11. Influenza	140	0
Undefined Fever	295	0
12. Miliary Fever	1	1
13. Mumps	4	0
16. Dysentery		
(a) amoebic	5	1
(c) other or unspecified	11	2
18. Yaws	3	0
21. Erysipelas	1	0
23. Encephalitis lethargica	3	0
24. Menningitis meningococcal	6	6
29. Tetanus	11	5
Tuberculosis (a) (all forms)		
31. Respiratory System	67	17
32. Central Nervous System	2	1
33. Intestines and peritoneum	13	4
34. Vertebral Column	8	0
35. Joints	19	1
36. Other organs	20	0
38. (1) Syphilis	381	7
(2) Congenital Syphilis	13	3
40. (1) Gonococcal Infection	332	0
(2) Gonococcal Ophthalmia	19	1
41. Septicaemia	6	6
II. *General Diseases not included in I.*		
Cancer—		
44. Pharynx, oesophagus, stomach, liver and annexa	13	5
45. Peritoneum, intestines and rectum	1	0
46. Female Genital organs	17	2
47. Breast	15	0
49. Other or unspecified organs	7	2
50. Tumours not returned as malignant	47	0
51. Rheumatic Fever	7	0
52. Chronic Rheumatism, Osteo arthritis, Gout		
(1) Chronic Rheumatism, chronic arthritis	46	0
(2) Rheumatoid arthritis, Osteo-arthritis	9	0
55. Beri-beri	1	0
57. Diabetes	25	8
58. (a) Pernicious anaemia	4	0
(b) other anaemias	1	0
60. (a) Exophthalmic goitre	4	0
(b) other diseases of the Thyroid gland	5	0
64. Diseases of the Spleen	1	0
67. Chronic poisoning by mineral substances	7	2
68. Chronic poisoning by organic substances	6	1
III. *Diseases of the Nervous System and Sense Organs.*		
70. Encephalitis	3	0
(1) Cerebral abscess	1	1
71. Menningitis	15	5
72. Tabes dorsalis	5	0
74. (1) Cerebral haemorrhage	25	18
(2) Apoplexy	2	0
75. (a) Hemiplegia	7	0
(b) other forms of paralysis	7	2
77. Other forms of insanity	5	0
78. Epilepsy	7	0
79. Convulsions (non-puerperal)	8	3
82. (1) Hysteria, Neuralgia	5	0
(2) Neuritis	15	0
85. Diseases of the eye and annexa	149	0
86. (1) Diseases of the Mastoid Sinus	12	0
(2) Diseases of the Ear	13	0

	IV. *Diseases of the Circulatory System.*	Cases.	Deaths.
87.	(1) Pericarditis	1	0
88.	(2) Endocarditis	5	0
	(3) Myocarditis	70	15
90.	(1) Aortic valve disease	12	8
	(2) Mitral valve disease	17	8
	(3) Aortic and mitral valve disease	9	2
	(8) Disordered action of the heart	5	2
	(9) Heart disease (undefined)	36	15
91.	(a) Aneurysm	13	2
93.	Diseases of the veins	27	1
94.	Diseases of the Lymphatic system	231	0
	V. *Diseases of the Respiratory System.*		
97.	(1) Diseases of the nose	5	0
	(2) Diseases of the accessory nasal sinuses	25	0
98.	(2) Laryngitis	2	0
	(3) Other diseases of the larynx	1	0
99.	(a) Acute bronchitis	47	1
	(b) Chronic bronchitis	17	0
	(c) Bronchitis not distinguished as acute or chronic	72	0
100.	Broncho—pneumonia	63	30
101.	Pneumonia (a) lobar pneumonia	36	11
	(b) pneumonia (not otherwise defined)	53	18
102	Pleurisy	48	1
105.	Asthma	4	0
	VI. *Diseases of the Digestive System.*		
108.	(1) Diseases of the teeth and gums	25	0
	(3) Other diseases included under 108	13	0
109.	Tonsillitis, Adenoid vegetations (1)	56	0
	(2) Other diseases included under 109	4	0
110.	Diseases of the oesophagus	2	0
111.	(a) Ulcer of stomach	42	5
	(b) Ulcer of duodenum	10	0
112.	(1) Inflammation of the stomach	80	0
113.	(1) Ulceration of the intestines	172	44
	(2) Colitis	55	12
115.	Ankylostomiasis	11	0
116.	Diseases due to other intestinal parasites	15	0
117.	Appendicitis	351	14
118.	(a) Hernia	106	4
	(b) Intestinal obstruction	6	3
119.	(1) Intestinal stasis	47	1
	(2) Other diseases included under 119	69	7
122.	(b) Cirrochosis of the liver not returned as alcholic	24	1
123.	Biliary calculi	7	2
124.	Other diseases of the liver	30	7
125.	Diseases of the Pancreas	1	1
126.	Peritonitis without stated cause	21	8
127.	Other diseases of the digestive system	16	0
	VII. *Non-Venereal diseases of the Genito-Urinary System and Annexa.*		
128.	Acute Nephritis (including unspecified under 10 years of age)	27	4
129.	Chronic nephritis (including unspecified over 10 years of age)	64	24
131.	Other diseases of the kidney and annexa	14	1
132.	Calculi of the urinary passages	7	0
133.	(1) Cystitis	52	6
134.	(a) Structure of the urethra	48	5
	(b) Other diseases of the urethra, &c.	22	0
135.	Diseases of the prostate	16	1
136.	Non-venereal diseases of the male genital organs	229	0
137.	Cysts and other tumours of the ovary not returned as malignant	23	4
138.	(1) Salpingitis	204	20
	(2) Pelvic abscess in females	11	1
139.	Tumours of the uterus not returned as malignant	82	2
140.	Non-puerperal uterine haemorrhage	25	0
141.	(1) Other diseases of the uterus	142	0
	(2) Diseases of other female genital organs not included under headings	25	2
142.	Non-puerperal diseases of the breast	18	0

	VIII. *The Puerperal State.*	Cases.	Deaths.
143.	(a) Abortion	62	6
	(b) Ectopic gestation	10	1
	(c) Other accidents of pregnancy	22	0
144.	Puerperal haemorrhage	3	0
148.	Puerperal albuminuria and convulsions	5	2
	IX. *Diseases of the Skin and Cellular Tissue.*		
151.	Gangrene	40	1
152.	Carbuncle, boil	34	1
153.	(1) Cellulitis	49	0
	(2) Acute abscess	63	0
154.	(1) Ulcer, bedsore	197	0
	(2) Eczema	74	0
	(4) Other diseases included under 154	306	0
	X. *Diseases of the Bones and Organs of Locomotion.*		
155.	(1) Acute osteomyelitis and periostitis	68	0
	(2) Other diseases of the bones	11	0
156.	Diseases of the joints	41	0
157.	Amputations	51	0
	XI. *Congenital Malformations.*		
159.	(1) Congenital Hydrocephalus	3	0
	(2) Congenital malformation of heart	1	1
	(3) Other congenital malformations	14	1
	XII. *Diseases of Early Infancy.*		
162.	(3) Other diseases peculiar to early infancy included under 162	9	5
	XIII. *Old Age.*		
	(2) Other forms of senile decay	3	0
	Accidental burns	51	0
	Insect bite	1	0
	Undefined diseases	37	0
185.	Deaths by fall	..	2
188.	Deaths by accidents, vehicles, &c.	..	38
	Wounds:		
	A. Bullet	13	3
	B. Stab	84	0
	C. Other wounds	76	0
201.	Fractures	149	0
	Local injuries	340	0

Table V.

(1) *Operations upon Female Genital Organs.*	Cases.
Salpingectomy	237
Draining Pyosalpuix	3
Oophorectomy	107
Ovaristomy	18
Broad Ligament Cysts	4
Myomectomy	6
Hysterectomy sub-total	67
Hysterectomy total	1
Caesarean Section	1
Uterine Polyp	3
Uterine suspension	1
Curettage	52
Amputation of cervix	1
Dilitation of cervix	7
Amputation of labia minora	1
Extra Uterine gestation	9
Bartholin Cyst	2
Retained placenta	1
Retained products of conception	2
Perinocorrhaphy	4
Trachelorrhaphy	2
Vesico Vaginal fistula	1
(2) *Operations on Hernia.*	
Radical cure	96
Femoral hernia	3
Strangulated hernia	4
Obstructed hernia	1
Umbilical hernia	1
Ventral hernia	1

	Cases.
(3) *Operations for Appendicitis.*	
Appendicectomy	351
Appendix abscess	15
Appendicostomy	1
(4) *Operations upon the Stomach and Intestines.*	
Perforation of Gastric Ulcer	3
Colostomy	3
Enterostomy	2
Intestinal obstruction	6
Laparatomy	27
Gastro-enterostomy	2
Laparotomy for Tubercular Peritonitis	7
(5) *Operations upon the Kidneys.*	
Nephrectomy	1
Nephro-lithotomy	2
(6) *Operations upon the Bladder.*	
Supra pubic cystotomy	16
Cystocopy	2
Vesical calculus	2
(7) *Operations for disease of the Prostate.*	
Super public prostatectomy	2
(8) *Operations on the Urethra and Penis.*	
Dilatingurethral stricture	70
Circumcision	142
Amputation of the penis	2
Urethral caruncle	3
(9) *Operations on the Scrotum and Testicle.*	
Radical cure for Hydrocele	20
Orchidectomy	7
(10) *Operations on the Anus and Rectum.*	
Anal fistula	6
Haemorroidectomy	19
Dilating rectal stricture	25
Rectal Polyp	1
(11) *Libature of Vessels.*	
Femoral artery	4
Meningeal artery	1
(12) *Amputations.*	51
(13) *Operations upon the Ear.*	
Radical cure for Mastoid	8
(14) *Operations upon the Nose, &c.*	
Removal of Adenoids	240
Tonsillectomy	523
Nasal Polyp	33
Peri—tonsillar abscess	5
Turbinates	5
(15) *Dislocations*	6
(16) *Operations on Nerves*	
Nerve suture	2
(17) Tracheotomy	1
(18) *Operations on the Thorax*	
Amputation of breast for malignancy	15
Adenoma of breast	4
(19) Suturing tendons	9
(20) Operations on the Antrum and Frontal Sinus	22
(21) *Ophthalmic Operations*	
Extraction of Cataract	12
Needling Cataract	26
Enucleation of the Eyeball	30
Meibomian Cysts	32
Pterygium	10
Lachrymal Apparatsu	3
(22) *Operations on affections of Bones*	
Osteomyelitis	40
Sequestrotomy	8
Osteotomy	1
(23) *Fractures of Bones*	
Resetting fractures	17
Wiring fractures	16
Fracture of Skull	1
(24) *Excision of Glands*	
Cervical	4
Axillary	1
Inguinal	51
(25) Operations on the Thyroid Gland	5

		Cases
(26)	*Operations on the Gall Bladder*	
	Excision of Gall Bladder	1
	Draining of Gall Bladder	3
(27)	Incision of Abscess	138
	Abdominal abscess	3
(28)	Suturing wounds	15
(29)	Removal of foreign bodies—Bullets, needles, &c.	39
(30)	Examinations	64
(31)	Scraping Ulcers	13
(32)	Dental Extractions	3
(33)	Excision of Ganglion	7
(34)	Excision of Toe Nail	68
(35)	Excision of Lipoma	7
(36)	Breaking down adhesions	33
(37)	Excision of Cysts	24
(38)	Excision of Carbuncles	3
(39)	Excision of bursae	7
(40)	Operation for Hare Lip	1
(41)	Excision of submaxillary calculus	1
(42)	Operation for deformity	2
(43)	Anihum	1
(44)	Incision for Liver Abscess	4
	Total	2,996

TABLE VI.

Returns of Venereal Clinic 1931.

No. of Salvarsan Injections.	No of patient treated with Salvarsan.	No. of patients treated for Venereal disease.	No. of Out-patients dressed and irrigated		No. of operations performed	No. of prescriptions and Lotions dispensed.	
			Males	Females		Wards	O.P.
16,316 No. of Bismuth and Sodii Tartrate 96 No. of Gonococcal vaccines 683	6,094	30,527	9,013	3,312	386	13,696	3,650

Table VII.

No. of Out-Patients (including patients with authorised tickets, ear, nose and throat Dept., eye Dept.)	132,838
No. of prescriptions for the above	62,230
No. of prescriptions for Constabulary	831
No. of minor operations performed in Out-Patient Department ..	3,298

Countries.	No.	Parishes.	No.	Remarks.
Africa ..	1	Kingston ..	3,211	
America	29	St. Andrew ..	2,041	
Assyria	8	Pt. Royal ..	27	
Barbadoes	1	St. Thomas ..	39	
British Guiana ..	1	Portland ..	25	
Canada	3	St. Mary ..	37	
Cuba	7	St. Ann ..	18	
China	36	St. James ..	5	
Colombia	2	Trelawny ..	9	
England	30	Westmoreland ..	3	
Finland	1	St. Elizabeth ..	22	
Germany	4	Manchester ..	19	
Grand Cayman ..	6	Clarendon ..	33	
Holland	2	St. Catherine ..	89	
India	42	Hanover ..	2	
Ireland	7	Foreign ..	127	
			5,707	
Italy	1			
Jamaica	5,507			
Mexico	4			
Norway	3			
Scotland	2			
St. Vincent	1			
Spain	6			
Sweden	1			
Turks Island	2			
	5,707			

A. S. Westmorland,
Senior Medical Officer.

(b) *Report of the Visiting Surgeon, Jubilee Maternity Hospital.*

The number of patients admitted during the year was 1,384, as against 1,435 of the previous year. Of these 1,081 were black, 267 coloured, 25 white, 9 East Indian and 2 Chinese. 1,221 of the patients were residents of Kingston, 132 of St. Andrew and 31 of the other parishes.

There were 6 deaths during the year. The number of infants born was 1,309; of these 685 were males and 624 females. 84 were still born: 44 of these were macerated. There were 48 premature and 28 died.

There were 12 cases of twins.

20 nurses were admitted for training during the year: 2 did not complete their course, 5 failed to satisfy the examiners and 13 were awarded Certificates.

We acknowledge with gratitude the following gifts—Crackers and Christmas decorations from Miss McCarthy and Babies' Clothes from Mrs. Orrett.

We desire to record our thanks to Lady Stubbs, Mrs. B. M. Wilson and Miss Wilson for their visit to the Hospital at Christmas, and also our appreciation of the distribution of gifts to patients by them on this occasion.

Diseases and Complications affecting the Mother.

Abscess of breast	2
Albuminuria	407
Contracted Pelvis	1
Dwarf	1
Fever Ephemeral	9
German measles	1
Haemorrhage, Accidental	3
Haemorrhage, Post Partum	36
Inertia	3
Jaundice	1
Malaria	1
Placenta Praevia	4

Puerperal Convulsions	13
Prolapse of Cord	3
Pulmonary Tuberculosis	2
Spontaneous Expulsion	1
Vomiting Pernicious	5

Diseases and Deformities affecting the Infant.

Ascitis	1
Absence of Ligament	1
Anencephalocele	1
Cephal Haematoma	1
Cleft Palate	1
Club Foot	1
Deformity of Leg	1
Disembouled Foetus	1
Extra Fingers	12
Haemorrhagic Diathesis	4
Hare lip (double)	1
Ophthalmia	18
Thrush	2
Umbilical Hernia	3

Synopsis of Cases.

Presentations—	
Breech	18
Face	1
Footling	17
Transverse	1
Unreduced Occipit Posterior	4
Vertex	1,268
Operations—	
Applications of Forceps	13
Craniotomy	1
Curettage	8
Decapitation	1
For Ruptured Perinaeum	130
Venesection	6
Version	9

E. V. W. Mellad,
Visiting Surgeon, Jubilee Maternity Hospital.

(*c*) *Report of the Medical Superintendent of the Lunatic Asylum.*

On December 31st, 1931, there were 1,770 patients in this Hospital as compared with 1,747 on December 31st, 1930, an increase in total number of 23. The daily average number of patients for 1930 was 1,712, while in 1931 it was 1,766. The total number treated was 2,269.

During the year, 517 patients were admitted: of these 275 were males and 242 females. There were no births. 1 male was recaptured after escape. 3 males and 1 females were returned from the Public General Hospital after special surgical treatment.

With regard to admissions it must be repeated that we have had a large number of re-admissions. This is in the main due to the fact that patients' relatives though often asking for patients to be discharged, are not anxious to care for them, and that the police, especially in the country districts, do not realise that simply because a patient who has been in the Asylum and is tormented by his neighbours thereby becoming somewhat irritable, is not necessarily of unsound mind.

It must again be reported that the Medical Certificates, Statements of Particulars, and other information relative to admissions, are in the main of little value; those responsible for sending patients to the Asylum barely conform with the Law and nothing more. It is still noted that Form 1118 "Statement of Particulars" is being filled up by the Police or Poor Law Officers instead of by relatives of patients as has been recommended.

Total number of patients discharged was divided as follows:—

Recovered	Males	56	Females	46
Relieved	„	61	„	60
Not improved	„	6	„	3
Births	„	Nil.	„	Nil
Escaped	„	1	„	„
Sent to Kingston Public Hospital for surgical treatment	„	4	„	1
Deaths at Kingston Public Hospital	„	0	„	1

Many patients have to be discharged as relieved, owing to the fact that they have been in the Hospital on previous occasions.

The percentage of recoveries based on the number of admissions was 19.72%. The percentage of cases discharged relieved based on the number of admissions was 23.40%.

The total number of deaths was 261; males 142, females 119, a total increase of 119 against the year 1930. The percentage of deaths calculated on the average daily number of patients resident was 14.77%.

The principal causes of death were: Tuberculosis (especially pulmonary), Dysentery and Dementia Paralytica. There has been some increase in the number of deaths among patients suffering from Dementia Paralytica, but most of these have been in the Institution for some considerable period. It is regretted that two female patients committed suicide but there was no evidence to prove that their death was consequent on any lack of care and observation on the part of any Senior Officer. In the first case I did, however, discover on my return from leave that there was evidence that the Nurse in charge of one case was to blame for being non-vigilant. This Nurse has since left the Service on her own initiative. Post Mortem Examinations were made in 98 cases of death.

There are as usual several very dangerous patients in the Hospital. I am glad to report that no serious injury has been sustained by the Staff.

Heredity taint, consanguinity of parents, syphilis, insufficient or poor dietary, unemployment and bad home surroundings have been the chief causes of insanity. During the latter part of the year several patients were admitted suffering from Exhaustion Psychosis, obviously due to partial starvation consequent on inability to earn a living during the present depression in the Island. The majority of cases admitted were suffering from Dementia Praecox, congenital mental deficiency, or Exhaustion Psychosis.

Prevalent Physical Diseases:—Tuberculosis (principally pulmonary), Ankylostomiasis, such cases being admitted mostly from the north-western portion of the Island where I understand the Hookworm Commission have not yet developed their campaign, Syphilis affecting nervous system, Pellagra, and lastly some cases of Septicaemia due to the prevalent practice of troublesome patients biting others.

There has been a small outbreak of Chicken Pox which was checked by Isolation. Several cases of Clinical Dysentery have occurred. Laboratory findings have, however, with the exception of few cases been negative. In the few cases in which Bacteriological Examination has revealed the presence of a specific organism, it has been found that the infection has been due to the Shiga or Flexner Group of organisms.

Dr. U. N. Murray instituted a form of treatment in the early part of the year for the treatment of Dysentery cases which consists of milk diet alone and the exhibition of Bismuth and Calumba. This treatment has certainly proved very efficacious and though disorders of the Dysentery, Diarrhoea and Enteric Group still continue they very soon clear up and the death rate from same has been much reduced.

There have been several cases of Pellagra, but this disorder is not due to the dietary in the Asylum. Polished rice and other articles of dietary deficient in vitamins are not supplied. The supply of fresh vegetables is adequate. The Sulfosin treatment of Dementia Paralytica was tried but proved to be unsuccessful.

New Works and Repairs respective of Buildings:—In the Female Division no new wards have been erected, but all the latrines with the exception of six have been modernized. This has caused a considerable saving in the consumption of water and done away with the foul odours emanating from the old latrines. A septic tank has been constructed for dealing with the sewage from all except the Laundry and three wards in this division. The effluent from same is being discharged into certain parts of the Asylum ground near the sea which are being converted into a sewage farm. It is, however, too early at the present date to make any definite statement as to the efficiency of the tank. Owing to the nature of the ground the effluent, when distributed, unfortunately becomes very offensive on exposure to the action of Aerobic organisms. Considerable minor repairs have been carried out in this Division. I regret to say that over crowding, though relieved, still exists. There has been some trouble with the well at the laundry owing to grit damaging the washers on the foot valve. This well should, I understand from a Public Works Department expert, be sunk at least another 20 feet so as to avoid further trouble.

Male Division—The new Private Patients' ward consisting of 19 single rooms, general rooms, kitchen, proper sanitary conveniences, has been erected. This was opened by His Excellency the Governor on 11th December, 1931. Many persons visiting the Asylum and seeing the new ward have expressed the opinion that this was a long needed want. A new Infirmary Ward for the accommodation of 40 patients has been built in connection with the old Infirmary. A new Sleeping Dormitory to hold approximately 60 patients has been erected to the north of "B" ward and Court. These buildings are now occupied. The old Private Patients' ward is in the process of being re-conditioned and will be finished before the end of January. These improvements have greatly relieved the overcrowding in the Male Division, but in view of the fact that Lunacy incident in both sexes appears to be on the increase; it is very probable that further accommodation will be required in the near future. With the exception of two old latrines which I hope will be shortly re-conditioned, all the old sanitary arrangements in the Male Division have been re-conditioned and modern latrines installed.

Unfortunately, throughout the Institution much painting required could not be carried out owing to lack of funds, with the result that a great deal of the iron and wood work is getting into a bad state and will soon need repairing or renewal. New Stores and Offices are much needed as the present accommodation is quite inadequate, this in spite of the fact that roof ventilators have been installed which makes them slightly more habitable both for employees, and more suitable for storing clothing and provision.

A new quarter for the Fourth Assistant Medical Officer is urgently required. The present quarter occupied by this officer is on the point of collapse and being, as it is, situated near the new building in the Male Division it is a perfect eye sore.

The old entrance gate at the corner of Windward Road and Paradise Street is being taken down and a much safer entrance made. It must be again urged that it is very essential that a Porter's Lodge be erected at this point in order to keep out the undesirable people who are always invading the Asylum grounds, and who cause no end of trouble to the officers and staff of this institution. If the gates were properly protected the Asylum would not have robberies, petty larcenies and a general nuisance from which it at present suffers.

A proper building in which Church Services can be held is much required. The old Amusement Hall requires repairs and alterations: it is not safe and the ventilation is bad.

Farm and Grounds: Owing to economy it has been impossible to extend gardens within the grounds and wards. Those already instituted have done well and many patients are occupied in looking after same. It is hoped that with the new sewage farm we shall soon be able to cut down to some extent the supplies of vegetables which have to be purchased from outside the Asylum. The Poultry Farm has now been taken over by the Chief Attendant and is showing signs of being productive. Sheep have done well and lambs have been plentiful and healthy.

The approximate cash value of garden produce, poultry and eggs supplied from the farm is sixty-eight pounds (£68) in round figures.

The Board met quarterly as usual, but I regret to report that with the exception of Mrs. B. M. Wilson, no member has taken interest by visiting the wards. We greatly miss the Very Reverend Father Francis Kelly who always took a keen interest in the Institution.

His Excellency the Governor visited the Institution on the 11th December, 1931, and opened the new Private Patients' ward at the Male Division; he also visited the new addition built in connection with the Male Infirmary ward.

Lady Stubbs visited the Institution on Christmas Day and made a thorough tour of the Institution much to the delight of the patient and staff. It is regretted that His Excellency the Governor, owing to indisposition, was not able to be with us on that day as he intended to be.

The Honourable Sir A. S. Jelf, Colonial Secretary, visited and inspected the Institution with regard to the condition of that portion of the grounds already dug out by the Prison Authorities to obtain clay for brick-making.

Occupation of Patients:—About 500 men are employed in the Work-shops, gardens and about the grounds, and about 400 women are occupied in the Laundry, Sewing room and doing light work in gardens, grounds and wards.

A portion of the washing from the Public General Hospital is now being dealt with at the Asylum. The Institution is also providing its own floor polish and the Public General Hospital with the same commodity. It is hoped that in the ensuing year we shall be able to manufacture our own cleaning material for brass and other metals and supply the Public General Hospital with same. Other forms of industry and methods of occupational therapy are also contemplated. Straw brooms are also made for the Public General Hospital. Mops, Mats, etc., are being made out of old condemned clothing, for use in the Asylum.

The Matron, Chief Attendant and Dispenser, are to be commended on their specific efforts towards introducing occupational therapy for patients thereby promoting economy.

Many patients enjoy parole within the grounds.

Amusements of Patients:—Cricket, dances, concerts, basket ball, football, etc. The Annual Sports were held on 30th September, and it is due to the hard work put in by the officers and staff that they were a greater success than previously. His Excellency the Governor and Lady Stubbs were present and His Excellency kindly presented the prizes.

On Christmas Day the working patients had their usual Christmas Tree, and all workers got small gifts. Owing to the generosity of several well wishing citizens of Kingston it was possible to give many others of the patients small presents consisting of cakes of soap and other small comforts. Among the many who contributed were the Machado Tobacco Company and the Doncaster Jamaica Soap Factory.

Mrs. B. M. Wilson, Sergeant-Major Locke, Mr. Russell, The Times Store, Harold Cocking, Mrs. Drew and many other friends too numerous to mention have sent us large supplies of books, magazines and papers and in some cases Tennis Balls, Cards and other articles tending to promote amusement to the patients.

The Church Services have been held as in the last few previous years, and I must congratulate the Reverend Father Semmes on his indefatigable work throughout his flock within the Institution.

Staff:—The Medical Superintendent was on leave from February 14th to May 12. Dr. J. S. Myers recovered from his illness and returned to duty. Dr. G. E. Valentine, Acting Fourth Assistant Medical Officer, resigned on 28th February, 1931, and Dr. H. H. James was appointed in his stead, which appointment has been confirmed. Dr. J. J. Cameron was on sick leave during part of the year. The Medical Officers have done their best to co-operate in carrying out the work of the Institution during the past year.

Miss Tyler, Matron, and Miss Grant, Assistant Matron, and Mr. Carney, Chief Attendant, have been indefatigable and have done excellent work. The appointment of Mr. Redmond as Chief Artisan has proved satisfactory, and much work which would have had to be delegated to the Public Works Department has been carried out under his supervision. There has also been a considerable saving in materials, such as lumber, paint, and cement. The staff of the office and stores have all given of their best, and very often worked overtime.

The subordinate nursing staff have with few exceptions behaved well, but I regret to say that many of the old type cannot yet appreciate that they are nurses and not warders or wardresses.

The usual courses of training in Mental Nursing were held. The Medical Officers, Matron and Assistant Matron gave excellent lectures and demonstrations and I am glad to say that in the Preliminary Class, eleven (11) nurses and seven (7) attendants succeeded in passing the examination, while in the final, fifteen (15) nurses obtained certificates of proficency in mental nursing. The general standard of staff knowledge shown was very good. It is hoped that during the ensuing year a greater number of the male will enter for and pass the final examination.

During the year classes in training in life saving from drowning were conducted. The Asylum owes a great debt of gratitude to Mr. C. F. Wickers for instructing attendants and nurses in this most essential branch of first aid training.

The Annual Staff Dance was held on July 30th, and in spite of the storm on that date, was much enjoyed.

A Thrift Club has been instituted at the Asylum on the same lines as that in existence among the Staff at the General Penitentiary. It has proved to be of considerable benefit to those members who joined it, and certainly has saved several members of the staff from getting into the hands of Usurers. The interest paid on investments worked out at the end of the year at approximately 5% per share. Mr. Robinson, Dispenser, has been indefatigable as Treasurer of the Club.

The following Number of the Subordinate Staff left the Service:

Attendants:—	4 retired on Pension.
	2 dismissed.
	1 voluntarily resigned.
Nurses:—	7 resigned voluntarily.
	6 resigned on account of ill health.
	1 failed to report for duty and was struck off the strength.
	2 were dismissed.
	1 retired on Pension.

Financial:—The amount authorised for meeting expenses during the financial year 1931-32, including Special Warrants for £340 was £52,911. The gross expenditure for the calendar year 1931 was £45,116 19s. 4d. The anticipated savings on the total vote for the current financial year is approximately 19%.

It must again be stated that votes covering items such as Dietary, Clothing and Bedding, Furniture, Travelling Expenses of Discharged Patients, and Funeral Expenses, cannot be definitely estimated for per annum. The varying number of patients in residence, the destructive propensities of some and the discharge rate can never be accurately estimated for each year.

The Statutory Statistical Tables follow:

TABLE I.—Showing the actual Admissions, Re-admissions, Discharges and Deaths during the Calendar Year ended 31st December, 1931.

	Males.	Females.	Total.	Males.	Females.	Total.
In Asylum, 1st January, 1931 . .	. .	. .	. .	867	880	1,747
Cases admitted—						
First admissions	143	169	312			
Not first admissions . .	132	73	205			
Captured	1	. .	1			
Returned from Public Hospital . .	3	1	4			
Born	. .	. .	. .	. .	. .	. .
Total cases admitted during the year	. .	. .	. .	279	243	522
Total cases under care during the year	. .	. .	. .	1,146	1,123	2,269
Cases discharged—						
Recovered	56	46	102			
Relieved	61	60	121			
Not improved	6	3	9			
Escaped	1	. .	1			
Died	142	119	261			
Sent to Public Hospital for surgical treatment	4	1	5			
Infants died	. .	. .	. .	. .		
Infants discharged						
Total discharged and died during year	. .	. .	. .	270	229	499
Remaining in Asylum, 31st December, 1931 . .	. .	. .	. .	876	894	1,770
Average number resident during the year	. .	. .	. .	867	899	1,766

TABLE IA.—Showing the number of previous attacks among those admitted during the Calendar Year, 1931, distinguishing those attacks that have been treated to recovery and discharge.

Number of previous attacks.	Having had previous attacks.					
	All attacks.			Attacks followed by discharge or recovery.		
	Males.	Females	Total.	Males.	Females	Total.
Have had 1 previous attack	52	36	88	24	26	50
Have had 2 previous attacks	26	11	37	10	8	18
Have had 3 previous attacks	10	2	12	7	9	16
Have had 4 previous attacks	6	2	8	3	5	8
Have had more than 5 attacks	3	7	10	4	2	6
Unknown	7	10	17	. .	6	6
	104	68	172	48	56	104

Table II.—Showing the Causes of Death among Male Patients during the Calendar Year, 1931, with the ages at Death.

——	Under 20	20 and under 30	30 and under 40	40 and under 50	50 and under 60	60 and under 70	70 and over.	Total.
	M.	M.	M.	M.	M.	M.	M.	M.
Chronic Brain Disease ..	..	2	1	3	1	..	..	7
Cerebral Haemorrhage ..	..	2	..	1	1	..	..	4
Maniacal Exhaustion ..	..	1	1	..	..	..	..	2
Epilepsy ..	..	..	..	1	..	..	..	1
General Paralysis ..	..	3	6	12	5	2	..	28
Dysentery ..	..	1	4	4	2	..	1	14
Enteric Fever ..	..	..	3	..	..	..	..	3
Chronic Colitis ..	..	..	..	..	1	..	..	1
Pellagra ..	1	2	2	1	..	..	..	6
Syphilis ..	..	1	..	1	..	..	1	3
Pulmonary Tuberculosis ..	2	10	5	9	3	1	..	30
General Tuberculosis ..	..	1	2	2	2	..	..	7
Peritonitis ..	..	..	3	..	...	..	..	3
Diseases of the Circulatory System ..	..	..	..	1	3	...	1	5
Diseases of the Urinary System ..	..	..	..	1	1	2	..	4
Appendicitis ..	..	..	..	1	..	...	..	1
Cancer of Tongue ..	..	..	1	..	..	..	1	2
Pneumonia ..	..	..	4	1	..	..	..	5
Septicaemia ..	..	2	..	..	1	1	...	4
Senile Decay ..	..	..	..	..	..	4	8	12
								142

Table II.—Showing the Causes of Deaths among Female Patients during the Calendar Year, 1931, with the ages at Death.

——	Under 20	20 and under 30	30 and under 40	40 and under 50	50 and under 60	60 and under 70	70 and over	Total.
	F.	F.	F.	F.	F.	F.	F.	F.
Meningitis ..	..	..	..	..	1	..	..	1
Chronic Brain Disease ..	1	1	1	1	3	2	1	10
Cerebral Haemorrhage ..	..	.	..	2	..	..	..	2
Maniacal Exhaustion ..	..	1	1	1	..	..	..	3
Cerebral Tumour ..	..	..	..	1	..	..	..	1
Epilepsy ..	1	..	..	..	..	..	..	1
Gen. Paralysis of the Insane	..	..	3	..	1	..	..	4
Dysentery ..	..	2	..	3	3	..	..	8
Enteric Fever ..	..	1	..	..	1	..	1	3
Pellagra ..	..	2	..	1	..	..	1	4
Pulmonary Tuberculosis ..	..	4	9	10	1	..	..	24
Tuberculosis, other forms ..	..	1	1	..	..	..	..	2
Syphilis ..	..	1	1	1	..	1	..	4
Pneumonia ..	..	3	..	2	1	..	..	6
Diseases of the Circulatory System ..	..	1	..	1	3	4	1	10
Diseases of the Respiratory System ..	..	3	1	..	1	..	..	5
Diseases of the Urinary System ..	..	..	1	..	3	2	..	6
Colitis ..	..	1	2	..	..	..	..	3
Carcinoma Cervix ..	..	..	..	..	1	..	..	1
Pernicious Anaemia ..	..	1	..	1	..	..	..	2
Poisoning, Accidental ..	..	1	..	..	..	..	..	1
Suicide ..	..	1	1	..	..	..	..	2
Senile Decay ..	..	..	..	..	1	5	10	16
								119

Table III.—Showing the duration of the Disorder on Admission in the Admissions, Discharges and Deaths during the Calendar Year ended 31st December, 1931.

Class.	Admission.			Discharges.						Deaths.		
				Recovered			Relieved or otherwise.					
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
First Class—First attack, and within 3 months on admission	123	125	253	28	25	53	3	19	22	44	51	95
Second Class—First attack, above 3 and within 12 months on admission	34	41	75	11	8	19	14	4	18	23	22	45
Third Class—Not first attack, and within 12 months, etc.	63	33	96	2	2	4	29	33	62	19	17	36
Fourth Class—First attack, or not but of more than 12 months on admission	32	18	60	9	5	14	17	3	20	16	14	30
Fifth Class—Congenital	..	..	..	..	..	..	1	..	1	..	..	..
Unknown	18	25	43	6	6	12	3	4	7	40	15	55
Total	275	242	517	56	46	102	67	63	130	142	119	261

Table IV.—Showing the probable Causes of Insanity in the Patients admitted during the Calendar Year ended 31st December, 1931.

Cause of Insanity.	Number of instances in which each Cause was assigned.											
	Number of Cases. Admissions—Males, 275: Females, 242—Total, 517											
	As predisposing Cause.			As exciting cause.			As predisposing or exciting where these could not be distinguished.			Grand Total.		
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
Moral—												
Domestic trouble (including loss of relatives and friends)	..	..	..	..	2	2	..	..	..	..	2	2
Adverse circumstances (including business anxieties and pecuniary difficulties) ..	..	..	..	..	5	5	..	..	..	..	5	5
Mental anxiety and worry (not included under above two heads) and over-work ..	..	..	..	..	..	..	..	..	..	..	..	..
Religious excitement	..	8	8	..	..	..	..	..	..	..	..	..
Love affairs (including seduction) ..	..	..	..	14	..	14	..	..	..	14	8	22
Physical—												
Intemperance in drink	..	..	..	..	3	3	..	..	..	..	3	3
Accident or Injury	4	..	..	..	..	..	..	..	..	4	..	4
Traumatism	..	..	..	..	..	..	..	..	..	..	..	..
Other bodily disease	..	..	..	..	..	..	..	..	..	..	..	..
Previous attacks	97	31	128	..	..	..	..	..	..	97	31	128
Hereditary influence	71	42	113	..	..	..	..	..	..	71	42	113
Adolescence	..	..	..	..	..	..	..	..	..	..	..	..
Epilepsy	..	..	..	20	6	26	..	..	..	20	6	26
Puerperal	..	2	2	..	..	..	..	..	..	..	2	2
Syphilis	15	..	15	..	29	29	..	..	..	15	29	44
Not known	..	..	..	..	..	..	35	91	126	35	91	126
Senility	8	14	22	..	..	..	..	..	..	8	14	22
Menopause	..	2	2	..	..	..	..	..	..	..	2	2
Ganga Smoking	6	..	6	..	4	4	..	..	..	6	4	10
Puberty	..	..	..	..	..	..	..	..	..	..	..	..
Tubercular Disease	..	..	..	..	3	3	..	..	..	..	3	3
Venereal Disease	..	..	..	..	..	..	..	..	..	..	..	..
Fevers	..	..	..	..	..	..	..	..	..	..	..	..
Congenital defect ascertained	5	..	5	..	..	..	..	..	..	5	..	5
	..	..	..	..	..	..	..	..	..	275	242	517

TABLE V.—Showing the form of mental disorders in the Admissions, Recoveries and Deaths during the year and the form of mental disorder of the inmates on 31st December, 1931.

Form of Mental Disorder.	Admissions.			Recoveries.			Deaths.			Remaining in Asylum.		
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
I. Congenital or Infantile Mental Deficiency (Idiocy, Imbecility) occurring as early life as it can be observed	8	7	15	..	..	..	4	..	4	..	11	11
Intellectual—												
With Epilepsy	..	3	3	..	..	..	..	4	4	26	3	29
With out Epilepsy	1	..	1	..	..	..	..	2	2	..	2	2
Moral	..	..	..	..	..	..	..	.	..	7	..	7
II. Insanity occurring later in life												
Insanity with Epilepsy	18	10	28	7	..	7	10	..	10	..	37	37
General Paralysis of the Insane	32	3	35	..	..	..	28	4	32	29	..	29
Insanity with the grosser brain lesions	2	..	2	..	..	..	..	..	..	..	..	..
Acute Delirium (Acute delirious Mania)	..	..	..	..	..	..	..	..	..	..	2	2
Confusional Insanity	26	8	34	20	1	21	2	2	4	..	..	..
Stupor	..	12	12	..	3	3	..	2	2	..	..	..
Primary Dementia												
Mania—												
Recent	61	45	106	16	17	33	19	25	44	254	337	591
Chronic	6	7	13	..	..	..	..	34	34	223	137	360
Recurrent	55	26	81	13	3	16	5	3	8	98	113	211
Depressive Psycholiss	..	..	..	..	..	..	5	..	5	..	..	..
Melancholia—												
Recent	6	16	22	..	5	5	15	7	22	25	12	37
Chronic	4	4	8	..	2	2	30	1	31	63	6	69
Recurrent	..	23	23	..	8	8	..	8	8	..	84	84
Alternating Insanity	5	18	23	..	..	..	..	..	..	..	..	..
Delusional Insanity	28	..	28	..	..	..	7	..	7	106	..	106
Systematised	..	6	6	..	..	..	..	8	8	..	15	15
Non-systematised	..	..	..	..	..	..	..	..	..	..	..	..
Volitional Insanity—												
Impulse	..	..	..	..	..	..	..	..	..	..	..	..
Obsession	..	..	..	..	..	..	..	..	..	..	..	..
Doubt	..	..	..	..	..	..	..	..	..	..	..	..
Moral Insanity	..	..	..	..	....	..	..	..	..	..	..	..
Dementia—	21	10	31	..	..	..	10	13	23	45	20	65
Senile	..	..	..	..	6	6	..	6	6	..	102	102
Secondary or Terminal	2	42	44	..	..	..	..	..	..	..	10	10
Pracox	..	..	..	..	..	..	7	..	7	..	..	..
Neurosis—												
Neurasthenia	..	..	..	..	..	..	..	..	..	..	..	..
Anxiety Neurosis	..	..	..	..	..	..	..	..	..	..	..	..
Psychoneurosis												
Hysteria	..	2	2	..	1	1	..	..	..	..	3	3
Psycasthenia	..	..	..	..	..	..	..	..	..	..	..	..
Total	275	242	517	56	46	102	142	119	261	876	894	1770

FINANCIAL STATEMENT.

TABLE VI.—Cost of Maintenance for the Calendar Year, 1931.

	£	s.	d.
Salaries	5,522	9	6
Wages	15,969	2	2
Religious Services	60	0	0
Dietary	16,188	10	10
Uniform for Nurses and Servants	615	1	3
Furniture and Utensils	487	10	10
Clothing and Bedding	2,569	17	3
Drugs and Medical Appliances	445	14	5
Funeral Expenses	161	10	5
Travelling Expenses of Discharged Lunatics	75	1	2
Farm and Grounds and Repairs	346	7	1
Rent of Telephones	96	0	6
Washing and Sanitary Arrangements	520	0	10
Fuel and Lighting and Power	1,051	1	6
Water Rates	603	0	0
Miscellaneous	329	1	11
Stationery	46	12	6
Electric Fans	8	13	0
Typewriter	21	4	2
	45,116	19	4

LESS REIMBURSEMENTS.

	£	s.	d.	£	s.	d.
Contr buting Patients	3,000	4	5			
Miscellaneous Revenue ..	104	10	4	3,104	14	9
Net cost to General Revenue				42,012	4	7

TABLE VII.—Statement respecting Minor Funds of the Jamaica Lunatic Asylum, from 1st January to 31st December, 1931.

1.—SERVANTS' FINE FUND.

	£	s.	d.
Balance on 31st December, 1930	215	10	9
Receipts in 1931	19	14	6
	235	5	3
Expenditure in 1931	22	3	9
Amounts at Credit 31st December, 1931	213	1	6

2.—PATIENTS' FUND.

(Including the O'Loughlin Bequest.)

	£	s.	d.
Balance on 31st December, 1930	2,245	4	8¾
Receipts in 1931	173	9	7½
	2,418	14	4¼
Expenditure during 1931	141	19	2½
Amount at Credit 31st December, 1931	£2,276	15	1¾

TABLE VIII.—Shewing the Total Gross Cost, the Reimbursement-in-Aid of Expenses incurred by the Government and the net Cost of Lunatic Asylum to General Revenue for the years 1928-1929 and 1929-1930 and for the Calendar Years ended 31st December, 1930, and 1931.

Year.	Total Gross Cost.	Reimbursements.		Total Reimbursements in-Aid.	Net Cost to General Revenue.
		Contributing Patients.	Miscellaneous Revenue.		
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1928-1929 ..	45,178 19 6	2,698 18 4	81 19 2	2,780 17 6	42,398 2 0
1929-30 ..	46,643 5 3	3,126 12 6	114 13 2	3,241 5 8	43,401 9 7
1930 ..	47,146 9 10	2,847 2 3	90 5 2	2,937 7 5	44,209 2 5
1931 ..	45,116 19 4	3,000 4 5	104 10 4	3,104 14 9	42,012 4 7

Table IX.—A Return showing the General Financial Operations of the Lunatic Asylum for the years 1928-1929, 1929-1930, and for the Calendar Years ended 31st December, 1930 and 1931.

Year.	Salaries and Religious Services.			Wages.			Dietary.			Uniform for Nurses and Servants.			Furniture and Utensils.			Clothing and Bedding.			Drugs and Medical Appliances.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
1928-1929 ..	4,312	6	11	13,222	11	9	20,175	9	1	424	0	1	645	1	5	3,297	12	0	519	11	0
1929-1930 ..	4,585	7	6	14,184	10	8	21,076	11	4	738	19	11	378	1	8	2,498	0	5	346	13	8
1930 ..	5,042	3	10	14,660	13	9	20,681	4	3	588	11	10	569	4	11	2,318	17	7	365	7	11
1931 ..	5,582	9	6	15,969	2	2	10,188	10	10	615	1	3	487	10	10	2,569	17	3	445	14	5

Year.	Funeral Expenses.			Travelling Expenses of Discharged Lunatics.			Farm and Grounds and Repairs.			Rent of Telephones.			Washing and Sanitary Arrangements.			Fuel and Lighting.			Water Rates.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
1928-1929 ..	115	15	1	102	19	6	300	6	3	64	13	1	512	19	9	648	12	0	505	0	0
1929-30 ..	99	17	1	98	11	10	395	16	3	81	7	6	539	13	4	776	2	7	503	0	0
1930 ..	106	13	3	81	18	1	509	7	0	94	2	0	579	14	10	784	17	2	403	0	0
1931 ..	161	10	5	75	1	2	346	7	1	96	0	6	520	0	10	1,051	1	6	603	0	0

Year.	Miscellaneous.			Stationery.			Electric Fans.			Purchase of Typewriting Machine.			Installation Telephones.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d
1928-29	291	14	2	38	7	5	..			..			2	0	0
1929-30	292	14	3	38	17	3	9	0	0	..			..		
1930	322	6	9	38	6	8	..			..			..		
1931	329	1	11	46	12	6	8	13	0	21	4	2	..		

(*d*) *Return of Diseases and Deaths in Public General Hospitals,* (*Outside Kingston*).

Disease.	Cases.	Deaths.	Out-patients
Chicken Pox	3	..	5
Diphtheria	4	..	..
Dysentery, Amoebic	22	2	7
Bacillary	2	1	..
Unclassified	3	1	4
Erysipelas	7	..	2
Enteric Fevers	383	131	36
Gonococcal Infections	678	3	1,539
Influenza	170	1	468
Leprosy	..	..	4
Malaria—Tertian	857	17	1,419
Quartan	1	..	..
Sub-Tertian	550	35	318
Chronic	2	..	..
Blackwater	11	2	..
Unclassified	1,016	60	2,886
Measles	1	..	6
Meningococcal Meningitis	4	2	6
Encephalitis Lethargica	4	..	..
Mumps	10	..	26
Scarlet Fever	3	..	2
Soft Chancre	65	..	182
Syphilis—Primary	122	..	888
Secondary	70	2	1,266
Tertiary	397	11	2,294
Congenital	27	1	122
Unclassified	38	3	399
Septicaemia and Pyaemia	23	10	..
Tetanus	36	13	..
Tuberculosis—Pulmonary	98	18	211
Other Forms	98	10	79
Whooping Cough	4	..	34
Yaws	41	..	871
Alcoholism	7	..	..
Anaemias	45	6	223
Diabetes	25	4	11
Pellagra	1	..	2
Beri-beri	1	..	..
Rheumatism—Acute	49	2	171
Chronic	69	..	1,254
Rickets	..	..	1
Tumours—Malignant	162	24	86
Non-Malignant	87	..	63
Diseases of the Ductless Glands	15	2	30
” ” Nervous System	294	36	686
” ” Eye	173	..	593
” ” Ear	30	1	69
” ” Circulatory System	355	65	514
” ” Lymphatic System	109	..	91
” ” Respiratory System	545	85	1,147
” ” Digestive System	136	101	5,856
Parasites	126	1	1,221
Diseases of the Genito-Urinary System (Non-Venereal)	1,805	124	3,062
” ” Puerperal State	427	41	75
” ” Skin and Cellular Tissues	929	14	5,983
” ” Bones and Organs of Locomotion	231	2	396
Malformations	4	..	4
Diseases of Infancy	8	4	25
Diseases of Old Age	4	1	5
Poisons	19	2	1
Diseases produced by external causes	2,596	48	7,538
Ill-defined diseases	26	..	38
No Disease	61	..	..
Total	13,089	886	42,219

Death rate 6.769%.

(*e*) *Return of Surgical Operations, Public General Hospitals* (*Excluding Kingston*) 1931.

	Cases.
1. Operations upon the Female Genital Organs—	
Salpingectomy	47
Colporrhaphy	12
Oophorectomy	13
Myomectomy	4
Dudley's Operation	13
Hysterectomy	25
Granuloma Pudendi	11
Uterine polyp	2
Uterine suspension	5
Removal of Ovarian Cyst	5
Curettage	162
Dilation of Cervix	1
Imperforate Hymen	1
Cauterization	2
Extra uterine gestation	6
Bartholin Cyst	1
Retained Placenta	10
Perineorrpaphy	9
2. Parturition—	
Instrumental Delivery	39
Caesearean Section	4
Craniotomy	4
3. Operations on Hernia—	
Radical cure of Hernia	77
Strangulated Hernia	15
4. Operations for Appendicitis—	
Appendicectomy	177
5. Operations upon the Stomach and Intestines—	
Perforation of gastric ulcer	1
Colostomy	1
Intestinal Obstruction	15
Gastro-enterostomy	9
Laparotomy	42
Resection of gut	1
Talma-Morrison operation	1
6. Operations upon the Bladder—	
Supra pubic Cystotomy	26
Polyp	1
Vesical calculus	2
7. Operations for Disease of the Prostate—	
Suprapubic prostatectomy	7
8. Operations on the Urethra and Penis—	
Dilating urethral strictures	270
Circumcisions	219
External Urethrotomy	15
Amputation of penis	2
Reduction of paraphimosis	3
Urethral caruncle	3
9. Operations on the Scrotum and Testicle—	
Radical cure for hydrocele	8
Orchidectomy	8
Varicocele	1
Encysted Hydrocele of Cord	1
Undescended Testicle	2
10. Operations on the Kidney—	
Nephrectomy	3
11. Operations on the Anus and Rectum—	
Fistulae	4
Haemorroidectomy	17
Dilating rectal strictures	4
Amputation of lower end of Rectum	1
12. Ligature of Vessels—	
Various	17
13. Amputations	185
14. Dislocations	29
15. Operations on the Ear—	
Radical cure for Mastoid	2
Removal of Cholesteatoma	1
16. Operations on the Nose, etc.:—	
Removal of adenoids	120

	Cases.
Tonsillectomy	260
Nasal Polyp	4
Turbinectomy	7
Drainage of Antrum	2
17. Operations on the Thorax—	
Amputation of breast	21
Resection of rib	1
18. Operations on Tendons—	
Tenotomy	2
Suturing tendons	29
19. Ophthalmic operations—	
Extraction of cataract	5
Enucelation of Eyeball	54
Tumour of Orbit	1
Meibomian Cyst	2
Pterygium	2
Lachrymal apparatus	7
20. Operations on Affections of Bones and Joints—	
Osteomyelitis	5
Sequestrotomy	59
Osteotomy	1
Arthrotomy	6
Removal of Lower Jaw	1
Removal of Upper Jaw.	2
21. Fractures of Bones—	
Setting Fractures	403
Wiring fractures	1
Fracture of skull	13
22. Excision of Glands—	
Cervical	12
Axillary	3
Inguinal	87
23. Operations on the Thyroid Glands—	
Cystic Adenoma	1
24. Operations on the Gall Blader—	
Excision of gall bladder	6
25. Operations on the Spleen—	
Splenectomy	1
26. Suturing Wounds	471
27. Removal of foreign bodies—	
Bullets, needles, etc.	66
28. Removal of Growths	64
29. Scraping Ulcers	26
30. Excision of Ganglion	1
31. Breaking down Adhesions	4
32. Excision of carbuncle	7
33. Supernumerary digits	1
34. Bursae	6
35. Tracheotomy	2
36. Operations on the Antrum and Frontal Sinus	9
37. Deformities—	
Talips (radical)	2
38. Subluxation Spine	2
39. Minor Operations	1,502
Total	4,827

(f) Report of the Medical Superintendent, Jamaica Leper Asylum.

	Males.	Females.	Total.
No. of Patients remaining 31.12.30	69	59	128
No. of Patients admitted during the year	14	17	31
No. of Patients discharged during the year	2	3	5
No. of Patients absconded during the year	1	2	3
No. of Patients died	17	13	30
No. of Patients remaining at end of year 1931	63	58	121
Daily average for the year	59	61	120
Inmates under 15 years at end of year	2	4	6
Average stay of those who died	9 years	6 years	
Average stay of those discharged and absconded	4 years	1 year	
Average stay of those remaining at end of year	15 years	6 years	

	Males.	Females.
No. of East Indians admitted during the year	1*	1
Longest period any one inmate remained in the Home	50 years 10 months	

Death rate 25 per 100.

* Re-admission.

Staff and Accommodation.

1 Medical Attendant (non-resident)
1 Superintendent and Dispenser.
1 Matron
4 Nurses.
2 Cooks.
1 Messenger.

Accommodation for mental cases is urgently needed.

Buildings and Grounds:—Minor repairs were effected by the Public Works Department during the year. All the buildings, drains, pavements, fences, etc. are, in need still of extensive repairs. The grounds are in, so far, good order, but could be better with the aid of Lawn Mowers. When an adequate supply of marl is supplied the roadways, etc. would be in good condition after rains.

Sanitary Arrangements:—Dry earth bucket system. The contents are cleared daily, and buried in the Farm attached to the Institution.

Drainage:—Open surface concrete drains.

Water Supply:—Spanish Town Water Supply. Quality fair, pressure poor.

Dietary:—As approved by His Excellency the Governor.

Occupation and Recreation:—The services, as in previous years, of all inmates, able and willing, are utilized in various work, e.g. labourers, gatemen, ward orderlies, under-nurses, etc. Money payments for these services are regularly submitted to Head Office.

The Farm continues to be of much value, and recreation to the patients. The produce is used in the Dietary; the owners of the produce are paid in money at "the ruling Contract Rates."

Cricket, Croquet, Foot-races, as well as In-door games, viz.: Cards, Draughts, etc. continue to give healthy and stimulating exercises to the inmates. Reading matter continues to be sent by good friends, and is much appreciated by the inmates. The annual Xmas dinner and Treat was duly carried out. My thanks are due to the many friends who materially assist in this work.

Deaconess Turner, Sister Beatrice and Miss Marvin and friends continue their valued visits. I am deeply grateful to His Excellency the Governor and to Lady Stubbs for their visits and kindly interest in the well being of the inmates, as well as to the Rt. Rev. William Hardie, Lord Bishop of Jamaica for his active interest and visits.

Gifts of books, reading matter and Gramophone records were received from many friends, including: Lady Stubbs, the Honourable Dr. and Mrs. B. M. Wilson, Deaconess Turner, Miss Marvin, Mrs. Kate Lewis (Alley) Miss Rebecca Bestley (Lucea), Captain and Mrs. S. F. Staight, Miss E. Lyle (May Pen), Miss V. Edwards (Cross Roads) Messrs. A. R. McGrath (Brown's Town) G. S. Walcott (St. Andrew), O. E. Tomlinson (Kingston) and friends from the United States of America, Canada and England. These are much appreciated, and I heartily thank each for their goodness.

Religious Ministration:—The Lord Bishop of Jamaica, Rt. Rev. William Hardie, confirmed and at Easter held special Easter Services in the Chapel. These were thankfully appreciated by the inmates. The Rev. Canon Harrison of the Cathedral and the Authorised Lay-Readers conducted the weekly Sunday Services. Rev. Father Arnold, S.J. and his assistants continue their devoted attention to the members of the Church of Rome. The Salvation Army and Seventh-day Adventist continued their regular visits and held services.

Treatment:—I have continued the use of Anti-leprol and Sodium Gynocardate Tablets with very satisfactory results. On selected cases I have used Alepol (intra-muscular injections), as recommended by Sir Leonard Rogers of England. I begun with:—

39 Males—(Tub 18—(a) 17—Mixed 4)
28 Females (Tub 16—(a) 12—Mixed 4).
67 cases—ages varying from 7 to 56 years.

The early Tubercular cases show marked improvement—nodules absorbing and ulcers healed. Many cases developed "eye trouble." I cannot report any marked changes in the Anaesthetic cases. It appears to me that, in the very early Tubercular cases, some good takes place, and if we could get these cases at an early stage there is hope for an arrest of the disease.

T. A. P. Wynter,
Medical Attendant.

VI. PRISONS.

Reports of the Medical Officers of Prisons.

General Penitentiary, Kingston.

There were 1,111 prisoners admitted during the year, of whom 13 were in feeble health.

There were 1,154 prisoners discharged during the year, of whom 6 were in feeble health.

Four deaths occurred during the same period.

327 officers received treatment during the year.

The health of the prisoners and the sanitary condition of the Prison have been satisfactory.

Return showing general Medical Statistics and proportion of cases treated within and outside the Hospital for the year ended 31*st December*, 1931.

Number in custody on 1.1.31.	648
Received during the year	1,111
Daily average number in custody	**604**

Removed from Prison on medical grounds	2
Deaths	4
Removed to Lunatic Asylum	6
Greatest number in custody on any one day	648
Greatest number of sick in hospital on any one day	68
Daily average number of sick in hospital	40
Number of sick treated outside of Hospital	6,001
Number of prisoners discharged during the year	1,154
Number of minor operations performed	84
Number of vaccinations done	495
Number of salvarsan injections given	341

R. H. Davidson,
Surgeon.

St. Catherine District Prison.

State of Prison:—The general sanitary condition of the Wards, Officers' Quarters and Compound was good.

Health of Prisoners:—The standard of health maintained among the prisoners was good.

The incidence of Bowel disorders was more marked than during the preceding year; 4 cases of Typhoid fever and 3 cases of Dysentery being reported.

The total number of admissions to Hospital was 761. More than 50% of the cases of sickness admitted were due to Malarial Fever. There were only 2 deaths from natural causes; one from Typhoid fever and the other from Malignant Malaria. Seven executions were carried out by hanging on prisoners convicted and condemned to death for murder. The mortality (excluding executions) based on the daily average number in custody was 3.78; less than half the figure recorded for 1930.

Health of Prison Officers:—74 Prison Officers were treated during the year. One death occurred. Malarial Fever as usual was the chief cause of illness.

Improvements carried out:—Considerable repairs were effected to the quarters occupied by the Chief Warder. The screening of these quarters recommended from time to time has not been done. If this could be carried out, the general health of this officer and his family would be better conserved. Some repairs were also carried out on the quarters occupied by the Storekeeper and Dispenser.

Return showing the following for the year ending 31.12.31.

	Total.
(1) Mortality from Execution—7: (2) from natural cause—2	9
Insanity	2
Removal on medical grounds	1
Suicide	Nil.
Cases treated among prisoners in Hospital	761
Number in custody, 31.12.31	574
Received into prison during 1931	3,203
Daily average in custody during 1931	529.238
Death per 1,000 calculated on the daily average during 1931	3.78
Cases treated in prison during 1931	1,540
Greatest number in custody any one day during 1931	608
Discharged during the year 1931	3,149
Number of officers treated in the prison during 1931	74
Number of prisoners received in feeble health during 1931	52
Number of prisoners discharged in feeble health during 1931	50
Daily average of sick in Hospital during 1931	22.424
Daily average of sick treated outside Hospital during 1931	43.720
Greatest number of sick in Hospital any one day during 1931	36
Greatest number of sick treated outside Hospital any one day during 1931	79
Number of cases treated outside Hospital during 1931	779

H. H. Blair, Surgeon.

Government Industrial School, Stony Hill.

There were 641 inmates treated in Hospital during the year.

The chief diseases were—

Influenza	148 cases.
Ulcers	46 "
Wounds	32 "
Measles	69 "
Chicken Pox	31 "

72 inmates were treated for Intestinal Parasites.

25 minor operations were performed.

One case of Acute Obstruction of the Intestines and Appendicitis was sent to the Kingston Public Hospital and successfully operated on.

During the year a number of Measles and Chicken Pox cases occurred. These were mild in type and cleared up without any complications.

A large number of cases of Influenza was treated.

No death occurred in the year and the general health has been good.

A. J. Thomas, Medical Officer.

RETURN OF DISEASES.

Disease.	General Penitentiary.			St. Catherine District Prison.			Industrial School Stony Hill.		
	In Patients.	Deaths.	Out Patients.	In Patients.	Deaths.	Out Patients.	In Patients.	Deaths.	Out Patients.
Chicken Pox	1	..	..	..	..	..	31	..	..
Dysentery	..	..	..	3	..	..	..	..	..
Enteric Fever	..	..	..	4	1	..	..	..	..
Gonococcal Infections	8	..	234	11	..	41	..	..	..
Influenza	80	..	61	1	..	1	148	..	..
Malaria	171	1	286	462	1	98	..	..	..
Measles	..	..	..	..	..	..	69	..	..
Mumps	..	..	..	..	..	..	30	..	..
Soft Chancre	..	..	..	20	..	36	..	..	..
Syphilis	15	1	56	9	..	13	..	..	..
Tuberculosis—Pulmonary	..	..	..	..	..	..	..	..	..
Other forms	1	..	..	..	..	..	..	..	..
Yaws	..	..	..	6	..	13	6	..	..
Pellagra	2	..	..	..	..	..	..	..	..
Rheumatism—Acute	..	..	..	2	..	..	1	..	..
Chronic	4	..	101	..	..	17	..	..	..
Tumour, malignant	1	..	..	..	..	..	..	..	..
Diseases of the Nervous system ..	21	..	257	4	..	11	6	..	..
" Eye	17	..	76	5	..	7	18	..	..
" Ear	..	..	..	1	..	7	2	..	..
" Circulatory System ..	4	..	53	20	..	8	4	..	..
" Lymphatic " ..	..	..	..	8	..	9	1	..	..
" Respiratory " ..	21	..	151	21	..	7	20	..	..
" Digestive " ..	78	..	730	39	..	140	31	..	..
Parasites	3	..	262	2	..	7	75	..	..
Diseases of the Genito-Urinary System (non-venereal)	17	..	32	20	..	13	6	..	..
Diseases of the Puerperal State ..	1	..	..	..	..	..	..	..	..
Affections of the Skin and Cellular tissues	129	..	1,144	79	..	179	104	..	..
Diseases of the Bones and Organs of Locomotion	5	..	..	3	..	5	6	..	..
Injuries	83	..	1,167	23	..	133	73	..	..
Other Diseases	52	2	1,391	26	..	34	10	..	..
Totals	714	4	6,001	769	2	779	641	..	..

VII.—SCIENTIFIC.

Table 1.—Origin of all specimens.

	Total No. specimens for year.
Kingston Public Hospital	7,433
Mental Hospital	687
Other Institutions	182
Country Medical Districts	708
Private practitioners.	907
	9,917

Table 2.—Bacteriological Section.

Nature of Tests.	Kingston Public Hospital.	Mental Hospital.	Other Institutions.	Country Medical Districts.	Private Practitioners.	Total.
Blood Culture	4	..	..	..	2	6
Faeces Culture	3	..	..	..	3	6
Culture from throat swabs	4	..	2	6	1	13
C. S. F. Culture	3	1	..	1	..	5
Water Samples	168 (a)	..	..	31	..	199
Totals	182	1	2	38	6	229

(a) From Kingston and St. Andrew Corporation.

Table 3.—Serological Section.

Nature of Tests.	Kingston Public Hospital.	Mental Hospital.	Other Institutions.	Country Medical Districts.	Private Practitioners.	Total.
Dreyer's Macroscopic agglutination tests	198	31	3	235	71	538
Wassermann Reaction	5,273	232	60	246	390	6,201
Totals	5,471	263	63	481	461	6,739

Table 4.—Clinical Pathological Section.

Nature of Tests.	Kingston Public Hospital.	Mental Hospital.	Other Institutions.	Country Medical Districts.	Private Practitioners.	Total.
Exam. Stained Films for Parasites	39	21	2	10	69	141
Erythrocyte counts	100	1	1	..	38	140
Leucocyte counts	98	1	1	..	39	139
Diff. counts and Exam. Stained films	116	7	3	1	61	188
Estimation of Haemoglobin	100	1	1	..	26	128
Exam. of stool for ova of Helminths	281	329	89	47	47	793
Exam. of Stool for Amoebae	16	15	2	4	10	47
Smears for pus and exudates	50	1	1	5	28	85
Smears from sputum for T.B.	106	45	11	114	61	337
Urinary Exam.—						
(a) Qualitative	809	1	6	7	55	878
(b) Quantitative	55	1	..	1	5	62
Unclassified Tests	10	..	..	..	1	11
Totals	1,780	423	117	189	440	2,949

Post Mortem Examinations:—103 Post Mortem Examinations were made during the year upon patients who died in the Public Hospital, Kingston. 57 of these were ordered by the Coroner and the remainder were performed upon bodies not requiring an inquest.

The following are Post Mortem Examinations not ordered by the Coroner upon patients dying in the Public Hospital, Kingston.

1.	Broncho pneumonia	9	
2.	Myocarditis	3	
3.	Malnutrition	3	
4.	Chronic Intestinal Nephritis	2	
5.	Uraemia	2	
6.	General Peritonitis (following Appendicitis)	2	
7.	Pulmonary T.B.	2	
8.	Nephritis	2	
9.	Toxaemia	2	
10.	Meningitis	2	
11.	Cardica Failure	2	
12.	Ruptured Aneurysm of Aorta	2	
13.	Typhoid Fever	1	
14.	Pleurisy	1	
15.	Girrhosis of Liver	1	
16.	Tubercular broncho-pneumonia	1	
17.	Status Lymphaticus	1	
18.	Diabetes	1	
19.	Ruptured Gastric Ulcer	1	
20.	Faecal Obstruction	1	
21.	Peritonitis	1	
22.	Malaria	1	
23.	Puerperal Septicaemia	1	
24.	Shock following operation for obstruction	1	
25.	Malignant disease—Carcinoma of stomach	1	Total 46.

Post Mortem Examinations ordered by the Coroner.

Fractures—Skull	12			
Ribs	8		20	
Toxaemia			5	
Poison—Disinfectant		1		
Hydrocyanic acid		1		
Ptomaine		1		
Antimony		1	4	
Burns			3	
Peritonitis			3	
Pyrexia of unknown origin			3	
Intracranial haemorrhage			3	
Haemorrhages			2	
Broncho pneumonia			2	
Shooting—Skull			1	
Stabs—Small intestines			1	
Cerebral haemorrhage			1	
Cerebral laceration			1	
Ruptured liver			1	
Ruptured kidney			1	
Rupture of descending colon			1	
Tetanus			1	
Pneumonia (due to injury of spinal chord)			1	
Abscess formation in the posterior media-stinum			1	
Myocarditis			1	
Cardiac Failure			1	Total 57.

Medico-legal Examination:—Articles were submitted by the Constabulary for examination in connection with 20 cases of wounding and 6 cases of Carnal knowledge.

Blood was found in 18 cases of the former and semen in one case only of the latter.

The following articles were received representing these 26 cases.

Medico-legal Examination articles received.

Article	Number	
Men's garments	50	
Women's garments	8	
Cutlasses	7	
Chisels	6	
Knives	4	
Leaves (Tree)	4	
Pillows	3	
Boxes	2	
Sheets	2	
Pieces of iron	2	
Stones	2	
Razor	1	
Piece of Brown Paper	1	
Towel	1	
Basket (Bankra)	1	
Window Curtain	1	
Paper fan	1	
Sash Cord	1	
Scrapings and cuttings of finger nail	1	
Bag (Crocus)	1	Total 99.

Sections:—Tissues for Histological Examination. 63 pieces of tissues were received during the year from various parts of the Island. Of these 21 were malignant and 42 non-malignant.

Section Results.

Tissue	Result	Number	Total
Unnamed tissues—	Innocent	8	
	Melanoma	3	
	Epithelioma	2	
	Carcinoma	1	
	Sarcoma	1	
	Endothelioma	1	16
Breast—	Carcinoma	6	
	Intracanalicular fibro-adenoma	2	
	Fibroma	1	
	Endothelioma	1	10
Skin and subcutaneous tissue—	Innocent	4	
	Polypus	1	5
Uterus—Cervix uteri			
	Erosion	1	
	Epithelioma	1	
	Innocent	3	5
Lymphatic glands—	Innocent	3	
	Melanoma	1	
	Fibroma	1	5
Penis	Innocent	3	3
Cyst	Fibroadenoma	1	
	Intracanalicular	1	
	Innocent	1	3
Lip	Epithelioma	1	
	Innocent	1	2
Kidney	Chronic Intestinal change	1	
	Acute Nephritis	1	2
Spleen	Malaria	1	
	Normal	1	2
Face (Scrappings from ulcer)—	Innocent		1
Forehead—	Rodent Ulcer	1	1
Tongue (small ulcer)—	Innocent		1
Prostate—	Innocent		1
Leg (Right)—	Innocent		1
Foot—	Melanoma		1
Hand (Right)—	Eptithelioma		1
Radius—	Sarcoma		1
Bladder—	Papilloma		1
Appendix	Innocent		1 Total 63.

Widal Reaction:—Results show 246 positive sera, 235 positive to B. Typhosus and 10 positive to B. Paratyphosus A, and 1 positive to B. Paratyphosus B.

Wasserman Reactionn:—6,201 wasserman reactions were performed of which there were 2,938 positive, 2,715 negative, and 548 doubtful.

Vaccines.—157 vaccines prepared. Nature of vaccines were as follows: B. Coli., M. Catarrahalis, Streptococcus, and Staphylococcus.

K. R. L. Evans,
Acting Government Bacteriologist and Pathologist.

RETURNS.

TABLES.

I.—Staff.

Medical Staff.

(Those marked * are registered under Section 17 of Law 49 of 1908 or Laws 1872—1896).

Office.	Name and Qualifications.
Principal Medical Officer.	Wilson, B. M., M.D., Ch. B., D.P.H. (Manch.) Cert. Lond. School of Trop. Medicine.
Senior Sanitary Medical Officer.	Henderson, J. A., M.B., Ch.B., B.Sc. (Public Health), D.T.M. & H. Edin.
Senior Medical Officer, Public Hospital, Kingston	Westmorland, A. S., M.R.C.S., Eng., L.R.C.P., Lond., D.T.M. and H., Eng.
Resident Medical Officers, Public Hospital, Kingston	Baxter, G. F., M.R.C.S., Eng., L.R.C.P., Lond.
	Clark, L. M., M.R.C.S. Eng., L.R.C.P. Lond.
	Stockhausen, J. M., M.D., C.M., McGill, L.M. S., Nova Scotia.
	Morrison, H. L., M.B., Ch.B., Edin.
	Ferguson, L. St. C., L.R.C.P., and S. Edin., L.R.F.P.S., Glas., B.A., M.D., Howard.
Supernumerary Medical Officers.	Golding, M. S., L.R.C.P. and S. Edin., L.R.F. P.S., Glas.
	McDonald, H. E., M.B., Ch.B., Aberd.
Dental Surgeon, Public Hospital, Kingston (part-time).	DePass, S. C., D.D.S.
Radiologist, Public Hospital, Kingston (part-time).	Parkin, C. H., M.D., C.M., D.P.H. McGill.
Government Bacteriologist and Pathologist (acting)	Evans, K. R. L., L.R.C.P. and S. Edin., L.R.F.P.S. Glas., M.P.H. Harvard.
Medical Superintendent, Lunatic Asylum.	Hewson, R. W. D., L.R.C.P. and S. Edin., L.R.F.P.S., Glas., M.R.C.S., Manitoba.
Assistant Medical Officers, Lunatic Asylum.	Myers, J. S., M.D., C.M., McGill.*
	Cameron, J. J., M.R.C.S. Eng., L.R.C.P., Lond. M.D., C.M.. Toronto, L.M., Rotunda Hospital, Dublin.
	Murray, U. N., M.C.P. and S. Ont.
	James, H. H., L.R.C.P. and S. Edin., L.R.F.P. S., Glas.
Visiting Surgeon, Jubilee Maternity Hospital, Kingston	Mellad, E. V. W., L.R.C.P. and S. Edin., L.F.P.S., Glas.
District Medical Officers (under new terms of appointment)	a. Davidson, R. H., M.D., Howard *
	Campbell, G. P., M.D., C.M., Trinity Univ., Canada*.
	Atkinson, R. M., M.D., Tuffts Medical School, Boston, Mass. *
	b. Sherlock, R. G., L.R.C.P., and S. Edin., L.F.P.S., Glas.
	Vaz., C. E., L.R.C.P. and S. Edin., L.R.F.P. S., Glas.
	Ritchie, F. A., L.R.C.P and S. Edin., L.F.P.S., Glas.
	Lecesne, G. I., M.B., Ch.B., Edin.
	Escoffery, W. I., M.B., Ch.B., Aberd., Cert. Lond. Sch., Trop. Medicine.
	James, K. G. W., M.R.C.S. Eng., L.R.C.P. Lond.
	Myers, A. E. C., M.B. Ch. B. Aberd.
	Curphey, A. G., L.R.C.P. & S. Edin., L.F.P.S., Glas. M.C.P. and S. Ont.
	Strudwick, H. T., M.D., C. M. McGill. *
	Gordon, S. R. M., M.D. Howard, L.M.S., Columbia *.
	Arthurs, S. J., M.D. Howard. *
	Greaves, E. S., L.R.C.P. and S. Edin., L.R.F.P. S., Glas.
	McFarlane, A. L., M.R.C.S., Eng. L.R.C.P., Lond.
	Levy, L. R., M.B., Ch.B., Edin.
	Johnston, C. D., M.D., C. M. McGill. *

Also—
a. Medical Officer, General Penitentiary.
b. Port Health Officer, Port Antonio.

Office.	Name of Qualifications.
District Medical Officers (under new terms of appointment) *contd.*	Riddell, C. E., M.B., Ch. B. Aberd.
	Mott Trille, R., M.D., Alabama.*
	Johnson, L. E., M.B., Ch. B. Liverpool.
	Douglas, E. G., L.R.C.P. and S. Edin., L.R.F.P. S., Glas.
	c. Wynter, T. A. P., L.R.C.P. and S. Edin., L. R.F.P.S., Glas.
	Wright, F. C. A., M.R.C.S. Eng., L.R.C.P., Lond.
	Ford, J. H., M.D., Toronto.*
	Hayden, A. R. C., M.D., C.M. Dal., L.M.S., Nova Scotia..
	Lopez, M. M., L.M.S.S.A., London (Acting.)
	Bartlett, T. M., M.B., C.M., Edin. (actg.)
	Anderson, A. A., M.R.C.S., Eng., L.R.C.P. Lond.
	Evans, F. R., M.D., New York.*
	Cooper, R. F. C., M.D., C.M. Dal., L.M.S., Nova Scotia.
	Thomas, A. J., L.R.C.P. and S. Edin., L.F.P.S., Glas., M.D., C.M., Toronto.
	Joslen, H., M.R.C.S., Eng., L.R.C.P., Lond., M.D., Durham.
	Wilson, W. E., L.R.C.P. and S. Edin., L.F.P.S., Glas.
	Tate, D. L., M.B., Ch. B., Glas., F.R.C.S. Edin.
	Sanford, Noel, M.D.. Canada.*
	Isaacs, S. A., M.D. Bellevie Medical College.
	Lofthouse, W. O. R., L.R.C.P. and S., Edin., L.F.P.S. Glas.
	McKenley, A. G., L.R.C.P. and S. Edin. L.F.P.S., Glas.
	Stimpson R. M., L.R.C.P. and S. Edin., L.F.P.S., Glas.
	Thomson, A. W., M.B., C.M., Aberd.
	Lyon, L. B., M.C.P. and S. Ont., M.D., Toronto.
	Watson, J. A., L. M., Nova Scotia.
	Clarke, A. T., M.D., C.M., Montreal.*
Port Health Officer and District Medical Officer, Port Royal ..	McIntosh, J. N., M.B., Ch.B., Edin.
Health Officers (Central Government) ..	Murray, E. E., M.B., B.S.. Lond.
	Cruchley, I. J., M.R.C.S., Eng., L.R.C.P., Lond., C.P.H., Johns Hopkins.
	Cruchley, F. H. N., M.R.C.S., Eng., L.R.C.P., Lond.
	Hall, J. M., M.R.C.S. Eng., L.R.C.P. Lond., C.P.H., Johns Hopkins
	MacPhail, D. H., M.B., Ch.B., Glas.
	Escoffery, G. S., M.B., Ch.B., Aberd., C.P.H., Johns Hopkins.
	Lowe, F. E., L.R.C.P. and S., Edin., L.F.P.S., Glas.
	Myers, A. A., M.R.C.S., Eng., L.R.C.P., Lond.
	Castle, H. D. B., L.S.A., London.
	Norton, F. A., M.R.C.S., Eng., L.R.C.P., Lond.
	Pengelley, C. E., M.D., C.M., McGill, D.P.H., Trinity, Dublin.
Director, Malaria Commission. ..	Aris, F. W., M.R.C.S., Eng., L.R.C.P., Lond.
Medical Officers, Hookworm Commission ..	Lawrence, H. S., L.R.C.P. and S. Edin., L.R.F., P.S., Glas.
	Watson, L. M., M.B., Ch.B., Aberd.
Medical Officers, Tuberculosis Survey and Clinic ..	Isaacs, E. Joyce, M.R.C.S., Eng., L.R.C.P., Lond.
	Cory, R. A. S., M.B., Ch.B., Bristol, M.R.C.S., Eng., L.R.C.P., Lond.
Surgeon, St. Catherine District Prison ..	Blair, H. H., M.D., Long Island College Hospital, Brooklyn, N.Y.*

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c. Medical Attendant, Leper's Home.

Nursing Staff.

Matron, Public Hospital, Kingston	Douglas, Miss A.
Asst. ditto ditto	Walton, Miss A.
Matron, Lunatic Asylum.	Tyler, Miss H. J.
Asst. ditto	Grant, Miss M.
Matron, Jubilee, Maternity Hospital	Thompson, Miss M.
Asst. ditto ditto	McNeil-Smith, Miss E.
Matron, Lepers' Home	McPherson, Miss M.
Matrons in Public General Hospitals	Spencer, S. A.
	Sterling, Miss D. V.
	Armstrong, Miss M.
	Orgill, Miss M. I.
	Manahan, Miss E. D.
	Edwards, Miss Ethel
	Webster, Miss V. M.
	Bird, Miss H. L.
	Nicholson, Miss Julia
	Robotham, Miss M. L.
	Marshall, Miss A.
	Thomas, Miss S. A.
	Leamey, Miss E. F.
	Pennicott, Miss H. M.
	Drummond, E. M.
	Bennett, Miss A. H.
	Wright, Miss L.
	Levy, Miss A. L.
	Montague, Miss N. B.
Nursing Sisters, Public Hospital, Kingston	Brooks, M.
	Schryer, C.
	Wright, E.
	Williams, M.
	Lopez, Z.
	Lee, D.
	Lucas, W.
	Russell, L.
	Levy, M.
	Prawl, L.
	Hewitt, E.

Principal Members of Subordinate Medical and Sanitary Staff.

Dispenser, Public Hospital, Kingston	Thomas, M. J.
Dispenser, Lunatic Asylum	Robinson, C. A.
Dispenser and Superintendent, Lepers, Home.	Levy, E. A.
Dispensers, Public General Hospitals	Hossack, C. W.
	Anderson, I. W.
	Bryan, A. V.
	Bryce, Egbert
	Young, D. S.
	Edwards, T. B.
	Andrean, J. A.
	Johnson, S. A.
	Bernard, H. G.
	Watson, V. F.
	Patrickson, C. H.
	Stewart, E. A.
	Bolton, D. O. L.
	Brown, W. S.
	Palmer, J. I.
	Wade, R. M.
	Robb, C. A.
Supernumerary Dispensers.	Magnus, V. S.
	Rodgers, G. B.
	Gruber, C. I.
Overseers of Works, Hookworm Commission.	Duncanson, B. B.
	Davis, H. W.
Senior Technician, Malaria Commission.	Edwards, Miss Gwyn.

II.—FINANCE.

(a) Expenditure of the Department for the year ended 31.12.31.

——	Personal Emoluments.			Other Charges			Total Expenditure.			Amount dues collected.			Actual expenditure after deducting dues collected.			Grants estimated.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
General Administration—																		
Island Medical Office	4,458	17	0	540	18	10	4,999	15	10	..			4,999	15	10	5,035	0	0
District Medical Officers	15,255	0	9	119	2	8	15,374	3	5	..			15,374	3	5	15,663	0	0
Duty Allowance—D.M.O. Stony Hill	25	0	0	..			25	0	0	..			25	0	0	25	0	0
Health Officer, Port Royal	600	0	0	..			600	0	0	..			600	0	0	600	0	0
Supernumerary Medical Officers	627	18	11	..			627	18	11	..			627	18	11	700	0	0
House Allowance, D.M.O.'s, etc.	676	13	4	..			676	13	4	..			676	13	4	735	0	0
Hookworm Commission	5,969	6	0	1,498	3	6	7,194	9	6	..			7,194	9	6	7,296	0	0
Malaria Commission	1,452	5	9	1,946	5	5	3,398	11	2	..			3,398	11	2	3,432	0	0
District Nurses and Caretakers	151	16	2	42	10	0	194	6	2	..			194	6	2	598	0	0
Supernumerary Dispensers	466	14	4	..			466	14	4	..			466	14	4	478	0	0
Leave to Dispensers, etc.	127	5	4	..			127	5	4	..			127	5	4	120	0	0
Fees for Medical Board	5	5	0	..			5	5	0	..			5	5	0	10	0	0
Fees for Medical Council	..			..			..			..			..			20	0	0
Bacteriological Branch	1,431	0	3	251	4	9	1,682	5	0	177	17	0	1,504	8	0	1,819	0	0
Quarantine	554	11	3	622	7	6	1,176	18	9	100	17	6	1,076	1	3	1,137	0	0
Central Board of Health	8,329	1	10	2,070	12	4	10,399	14	2	..			10,399	14	2	10,418	0	0
Travelling Allowances, D.M.O's., etc.	..			2,145	12	4	2,145	12	4	..			2,145	12	4	2,124	0	0
Bureau of Public Health Education	..			267	14	2	267	14	2	..			267	14	2	375	0	0
Training School for Sanitary Inspectors	..			77	9	0	77	9	0	..			77	9	0	110	0	0
Expenditure under Part IV of Public Health Law	..			1,226	18	5	1,226	18	5	..			1,226	18	5	1,138	0	0
Veneral Diseases Clinic	..			1,346	16	11	1,346	16	11	38	5	0	1,308	11	11	1,138	0	0
School Dental Clinic	..			600	10	3	600	10	3	..			600	10	3	500	0	0
Treatment of Yaws	..			1,888	6	9	1,888	6	9	..			1,888	6	9	2,300	0	0
Vaccination Fees	..			1,433	14	3	1,433	14	3	..			1,433	14	3	1,340	0	0
Drugs and Poisons Law	..			20	5	6	20	5	6	83	0	0	62	14	6	25	0	0
Midwifery Law	..			8	10	0	8	10	0	..			8	10	0	10	0	0
Drugs	..			2,509	1	10	2,509	1	10	..			2,509	1	10	2,508	0	0
Railway Fares for Candidates for appointment	..			..			..			..			..			10	0	0
Hospitals and Lepers Home—																		
Public Hospital	13,272	5	6	17,264	8	7	30,536	14	1	639	8	7	29,897	5	6	34,312	0	0
Jubilee Hospital	1,332	12	10	1,663	0	2	2,995	13	0	1,245	17	9	1,749	15	3	3,022	0	0
Lepers Home	827	18	0	2,216	3	1	3,044	1	1	..			3,044	1	1	2,913	0	0
17 Dispensers	3,226	13	4	..			3,226	13	4	..			3,226	13	4	3,248	0	0
19 Matrons	2,185	5	3	..			2,185	5	3	..			2,185	5	3	2,170	0	0
Morant Bay	340	0	8	827	13	7	1,167	14	3	7	11	6	1,160	2	9	1,069	0	0
Hordley	441	11	0	1,167	10	6	1,609	1	6	16	8	0	1,592	13	6	1,711	0	0
Port Antonio	556	3	0	1.265	0	2	1,821	3	2	57	4	0	1,763	19	2	2,091	0	0
Buff Bay	581	0	3	1,540	17	5	2,121	17	8	33	17	2	2,088	0	6	1,770	0	0
Annotto Bay	532	17	11	1,636	0	0	2,168	17	11	51	11	6	2,117	6	5	2,116	0	0
Port Maria	624	1	10	1,570	18	6	2,195	0	4	64	0	6	2,130	19	10	2,194	0	0
St. Ann's Bay	488	9	4	1,084	3	1	1,572	12	5	132	7	2	1,,440	5	3	1,540	0	0
Cave Valley	246	4	9	326	6	6	572	11	3	0	18	0	571	13	3	632	0	0
Falmouth	338	3	1	958	4	9	1,296	7	10	9	0	8	1,287	7	2	1,365	0	0
Ulster Spring	145	10	2	360	10	9	506	0	11	19	8	0	486	12	11	523	0	0
Montego Bay	890	16	5	2,733	10	2	3,624	6	7	278	16	4	3,345	10	3	3,135	0	0
Lucea	331	10	3	1,175	19	10	1,507	10	1	29	15	0	1,477	15	1	1,236	0	0
Sav.-la-Mar	741	17	2	2,147	16	11	2,889	14	1	164	2	6	2,725	11	7	2,281	0	0
Black River	482	4	10	1,704	15	2	2,187	0	0	169	6	6	2,017	13	6	2,610	0	0
Mandeville	460	19	10	1,333	1	3	1,794	1	1	157	13	6	1,636	7	7	1,591	0	0
Chapelton	459	12	7	997	8	0	1,457	0	7	4	12	0	1,452	8	7	1,394	0	0
Lionel Town	541	1	11	1,409	17	10	1,950	19	9	12	12	0	1,938	7	9	1,812	0	0
Spanish Town	561	7	8	1,873	13	2	2 435	0	10	6	16	6	2,428	4	4	2,312	0	0
Linstead	435	5	0	1,281	2	4	1,716	7	4	27	6	7	1,689	0	9	2,310	0	0
Instruments	..			575	13	4	575	13	4	..			575	13	4	538	0	0
Inland Freight	..			738	6	11	738	6	11	..			738	6	11	420	0	0
Improvements in Lighting	..			263	0	4	263	0	4	..			263	0	4	312	0	0
Transport of Lepers	..			54	12	2	54	12	2	..			54	12	2	50	0	6
Farm, Lepers' Home	..			12	8	9	12	8	9	..			12	8	9	10	0	0
Maintenance of Children of Inmates of Lepers' Home	..			107	6	11	107	6	11	..			107	6	11	100	0	0
Travelling Allowance, Visiting Surgeon, Jubilee Hospital	..			25	0	0	25	0	0	..			25	0	0	25	0	0
	69,901	8	6	66,930	14	7	136,832	3	1	3,528	13	3	133,303	9	10	141,476	0	0
Lunatic Asylum	21,551	11	7	23,565	7	9	45,116	19	4	3,104	14	9	42,012	4	7	51,929	6	0

(b) Return showing cost per occupied bed for the year ended 31.12.31.

———	Average No. of beds occupied.	Cost of Staff.	Cost of Dietary.	Total.	Cost per occupied bed per annum.	
					Staff.	Dietary.
		£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Public Hospital	332	8,789 4 5	8,126 2 8	16,915 7 1	26 9 6	24 9 6
Jubilee Hospital	37	1,171 5 8	827 3 8	1,998 9 4	31 13 2	22 7 2
Lepers' Home	121	826 3 0	1,295 2 0	2,121 5 0	6 16 6	10 14 1
Morant Bay	30	656 0 8	357 2 11	1,013 3 7	21 17 4	11 18 1
Hordley	38	757 11 0	565 11 0	1,323 2 0	19 18 9	14 7 5
Port Antonio	44	821 13 0	611 17 7	1,433 10 7	18 13 6	13 18 2
Buff Bay	49	877 10 3	628 14 4	1,506 4 7	17 18 2	12 16 10
Annotto Bay	48	841 7 11	602 1 9	1,443 9 8	17 10 7	12 10 10
Port Maria	60	938 15 2	776 11 8	1,715 6 10	15 12 11	12 18 10
St. Ann's Bay	27	804 9 4	386 15 4	1,191 4 8	29 15 11	14 6 6
Cave Valley	18	366 4 9	156 14 2	522 18 11	20 6 11	8 14 2
Falmouth	32	652 18 5	415 2 0	1,068 0 5	20 8 1	12 19 5
Ulster Spring	10	265 10 2	131 19 9	397 9 11	26 11 0	13 2 0
Montego Bay	66	1,153 3 11	821 12 11	1,974 16 10	17 9 6	12 9 0
Lucea	28	589 10 3	423 10 9	1,013 1 0	21 1 1	15 2 6
Sav.-la-Mar	73	1,057 17 2	892 4 4	1,950 1 6	14 9 10	12 4 5
Black River	65	778 14 10	749 7 3	1,528 2 1	11 19 7	11 10 7
Mandeville	36	776 19 10	575 1 3	1,352 1 1	21 11 8	15 19 6
Chapelton	28	775 12 7	397 8 8	1,173 1 3	27 14 0	14 4 10
Lionel Town	43	839 1 11	546 12 2	1,385 14 1	19 10 3	12 14 3
Spanish Town	64	877 7 8	804 5 8	1,681 13 4	13 14 2	12 11 4
Linstead	39	748 18 4	548 3 7	1,297 1 11	19 14 1	14 1 1
	1,288	25,366 0 3	20,639 5 5	46,005 5 8	..	..
Lunatic Asylum	1,766	21,551 11 8	16,188 10 10	37,740 2 6	12 4 1	9 3 4

Return showing the value of Drugs, etc., supplied to the various Institutions from the Island Medical Stores from 1.1.31 to 31.12.31.

	£ s. d.
Value of Drugs and Sundries to the Public General Hospitals, Lepers' Home and Medical Districts	6,101 16 10
“ Stimulants to Public General Hospitals and Lepers' Home	155 2 9
“ Drugs, etc. issued to Kingston Public Hospital	5,419 17 9
“ Stimulants issued to Kingston Public Hospital	394 2 10
“ Drugs, etc. issued to Jubilee Hospital	79 4 8
“ Stimulants issued to Jubilee Hospital	2 14 0
“ Drugs, etc. issued to Lunatic Asylum	354 11 7
“ Stimulants issued to Lunatic Asylum	1 2 4
“ Drugs, etc. issued to Prisons and Reformatories	244 7 7
“ Drugs, etc. issued to Department of Agriculture	14 16 2
“ Drugs, etc. issued to Quarantine Board	1 5 9
“ Drugs, etc. issued to Parochial Boards	989 10 3
“ Stimulants issued to Kingston & St. Andrew Corporation	2 13 8
“ Drugs, etc. issued to Constabulary Department	50 16 2
“ Drugs and Sundries sold	335 7 2
“ Lymph issued to District Medical Officers	534 3 0
“ Lymph sold	16 5 6
“ Drugs, etc. issued to Hookworm Commission	387 2 4
“ Quinine issued to Post Office for packets	612 15 3
“ Germicides issued for fumigation	42 2 1
“ Quinine issued to Schools	50 0 0
“ Quinine issued to Estates	5 11 9
“ Drugs, etc. issued to Tuberculosis Dispensaries	515 16 6
“ Drugs, etc. issued to Malaria Commission	21 17 10
“ Drugs, etc. issued for the control of Epidemic Diseases	377 15 7
“ Drugs, etc. issued for the relief of sufferers in Belize	142 8 0
	£16,853 7 4

IV.—Return of cases in the Kingston and St. Andrew Corporation Hospital for Infectious Diseases.

Admissions.	1925.	1926.	1927.	1928.	1929.	1930.	1931.
Alastrim	312	172	2	..	..	..	..
Chicken Pox	31	49	116	23	3	17	31
Measles	9	40	1	..	..	4	31
Syphilis	10	12	5	3	5	7	11
Diphtheria	1	..	..	..	..	..	..
Pneumonia	..	..	..	..	..	..	..
Yaws	..	5	1	1	2	7	3
Whooping Cough	..	..	..	..	..	..	..
Ring Worm	..	..	..	..	..	..	..
Scabies	..	..	4	3	..	..	..
Insect Bites	..	..	..	..	..	..	..
Enteric Fever	..	..	..	..	..	..	..
Arsenical dermatitis	..	..	..	..	..	..	..
Pulmonary Tuberculosis	1	..	..	..	..	..	..
Eczema	..	1	..	..	..	..	..
Mumps	..	..	..	..	9	5	..
Scarlet Fever	..	..	..	..	4	7	10
Leprosy	..	..	..	..	1	..	1
Under observations	15	15	1	3	..	..	..

No case of Alastrim was admitted during the year.

I. J. Cruchley,
Medical Officer of Health, Kingston.

APPENDICES.

I.—The Hookworm Commission.

Sanitation Unit No. 1, Ulster Spring and Bethel Town Areas.

Ulster Spring:—The operations of No. 1 Sanitation Unit continued in the Ulster Spring demonstration area of Upper Trelawny to the end of June, 1930, when it was abruptly brought to a close owing to the financial stringency of the Local Board of Health for the parish.

At the time the first suggestion was made that this branch of Public Health activities be suspended in the parish, the work in hand had progressed about half way. The uncompleted work is shown in the following: Census 1,744, occupants 9,009, sanitary latrines 6, insanitary latrines 277, without latrines 1,461, latrines constructed 655.

There were many buildings very much advanced in construction at the time. In anticipation of a satisfactory completion of these a successful attempt was made to extend the area further afield which should be an advantage for the whole-time Health Unit which would continue sanitation after the Commission had left the parish.

During March the districts of German Town, Wilson Valley, Rock Spring and Freeman's Hall were censused representing a population of 1,390 adults and children occupying 301 homes. There were no sanitary latrines found; 49 were of a very poor type, while 252 were without latrines of any kind. New arrivals into districts that had already been censused totalled 49. The total number of homes in the area was than brought up to 2,094.

At the beginning of the year, after 7 months work during the preceding year, 525 homes had been sanitated, and during the six months period, from January 1 to June 30, the Commission completed 937 latrines, leaving 632 to sanitate entirely the area in which they operated. On at least 75% of the latter, an appreciable amount of work has been done and ought not to present any difficulty to the officers of the Health Unit. The results which might be considered satisfactory were primarily due to the stern measures adopted. The Local Board very wisely gave us a free hand in the handling of householders, who were requested to attend Court in batches of 60 and more for penalties for contravening the Health Law. 201 householders were so pressed. 30 were fined from 10s. to 20s., 97 were called upon to pay the cost of service of summons, of from 1s. to 2s., and the others were discharged, having completed their latrines before the day set for trial.

3 of the 5 denominational schools constructed a good type of latrine and urinal: the two others had construction well under way. 4 of these schools are under the management of the Rev. H. S. Lynch, M.P.B. As a manager and a member of the parish Board it is rare that the Commission enjoyed such unstinted support.

The desirable practice of providing sanitary conveniences for all indigents and paupers by parish Boards could not be followed in Trelawny through the shortage of funds. £100 was provided, with which but 29 buildings could be erected for deserving householders. Native hardwood lumber was used for the framing up work and white lime was used in preference of cement. With the savings effected it was just possible to keep within the amount allotted.

The Bethel Town Area.

The demonstration area is situated in the north-eastern corner of the parish of Westmoreland, extending to the borders of the parishes of Hanover to the north, St. James to the north-east and St. Elizabeth east.

In St. James a sanitation unit has been engaged for some years; and in Hanover a Hookworm Campaign will be inaugurated early in the new year, so that soon there will be a contiguous area sanitated in the western end of the island. This will be very important from a health point of view, not only in the control of Hookworm disease, but will also be a direct handicap to the spread of Enteric or bad fever and all the bowel filth diseases.

From the St. Elizabeth border at Dundee it continues along the south line taking in Enfield, Big Woods, to Cain Curran, about 10 miles away; it then goes north back to the Hanover boundary, a distance of about three miles.

In the main the area is rocky and mountainous. This is specially true of the section around Beaufort (where the office is situated) and surrounding districts. In Seaford Town, the most industrious section, there is a surface soil of heavy loam, and a subsoil usually of a brick-like formation, and yet not the kind to withstand long periods of rain.

The area is in the electoral district known as St. Johns, and is the largest of such divisions in the parish; it is the most fruitful and blessed with seasonable rains during the greater part of the year. The chief product is banana, which is cultivated by nearly every one. In Beaufort and its precinct this fruit is not successfully grown because of the rocky soil, but pimento which will grow nearly anywhere is plentiful, and must have been a good source of revenue to householders when the price was more remunerative.

The area in common with the world in general is feeling the depression that now exists. It is no worse off than previous areas in which the Commission has operated, however, and in many ways its people are definitely better situated; if only for the reason that their positions allow for a very good type of dwelling houses being maintained, and still in progress of erection. Native hardwood timber grows in profusion and is more used in the construction of dwelling houses and other buildings than ever experienced before. The materials from mango, coconut, breadfruit, cotton and other trees are all utilised for building purposes.

Education and Religion:—12 churches and 11 schools representing various denominations are conveniently situated in different sections of the area. From the Local Pupil Teachers' examination results it is evident that teachers are profitably imparting knowledge to scholars. Parents on a whole are intelligent, and are distinctly of a better class than the average peasant in other parts of the island. Their general acceptance of the Unit is embodied in the household phrase following:—"We foolish fe fight public, it necessary, we should a 'ab it aready, but time 'ard, u' fe tek time wid we."

Health Education:—For three weeks in August educational work was done in the form of public and school lectures and house to house talks by the whole staff.

An estimated attendance of 1,000 adults and children listened to lectures in the district of Caledonia, Bethel Town, Lambs River, Beaufort, Whithorn and Savanna-la-Mar.

Health Week was fittingly observed in the parish, the Commission co-operating with Drs. Isaacs and Sanford.

The monthly bulletins edited by the Bureau of Health Education are eagerly looked forward to by many interested householders.

The Commission was well received by all when work was inaugurated in August. Every facility was afforded to the staff, not only by leaders in the district but also by the poorest.

It was felt and expressed by some, that the progress would be slow through the general adverse conditions prevailing: there was never an open expression of disagreement with the object of our work.

The practical response that followed strengthened our conviction that in Westmoreland and the Bethel Town area in particular a highly successful campaign was ahead of us.

At the end of the year, after 5 months operation our conviction was hardly shaken. It is true it was necessary to get authority to prosecute certain householders who have contravened the Public Health Law. It is our opinion, however, that these stubborn ones are of a new class of opposition. Opposing not because they feel latrine construction undesirable, but because of their independence, they seem to think that an arrogant gesture makes them important in the eyes of their neighbours.

Homes in the rocky districts of Darliston, Mount Blessed, Wales, Highgate, Galloway and sections of Bethel Town are experiencing great difficulties in procuring latrine pits. At first it was thought impossible without blasting operations on a large scale. To succeed without this expedient reflects great credit on the determination of the people concerned.

In Galloway 74 homes of 163 censused have already completed latrine construction. These are so pleased with the service they now enjoy that they boast of it to the others not done. Now there is a healthy rivalry amongst the latter to compete.

The figures representing the work accomplished in the area are shown below.

Censused	1,567
No. of adults	5,359
No. of Children	3,888
No. of Sanitary Latrines	13
No. of Insanitary latrines	407
No. without latrines of any kind	1,147
No. of Insanitary Latrines remodelled and made sanitary	57
No. of latrines constructed	465
Total No. of completions	522

Because of the plentiful supply of hardwood available in the area there is no dificulty keeping to the high standard of latrine buildings attained for some years now. All buildings are either of zinc or shingle, and in no case have the sides been done of wattles.

Government and Parochial buildings and elementary schools are all having attention. In Bethel Town, estimates for the Court House and Police Station have been forwarded to headquarters for approval; while the latrine at the Collectorate in Darliston was completed a couple months ago. The materials for the construction of school latrines are now being gathered by the individual managers.

3 Sanitary Inspectors continue giving satisfactory service; owing to the reduction of staff members, however, the scope of our activities is restricted. This is readjusted in some measure by the comparatively thick housing of the people.

The figures in the following table give an idea of the work supervised by each of the three Sanitary Inspectors:—

San. Inspector.	Homes.	Census.	San.	Ins.	Nil.	San.	Insan.	Nil.
L. T. Atkins	521	4,100	1	91	429	192	21	308
R. Beckford	532	2,446	..	134	398	183	35	314
M. H. Gordon	514	2,701	12	182	320	160	52	302
Totals	1,567	9,247	13	407	1,147	535	108	924

Sanitation Unit No. 2—Catadupa and Adelphi Area.

Catadupa Area.—Work was commenced in this division when the Overseer of Works along with two Sanitary Inspectors moved over from the John's Hall—Maroon Town area in the middle of February, educational and census work being at once taken up. During the month of May another Sanitary Inspector was drafted from the John's Hall—Maroon Town area, and early in July the fourth, leaving the entire area of Johns' Hall—Maroon Town in the hands of the Follow-up Officer that was appointed as from the 1st February under the supervision of the Overseer of Works.

This area is the third taken up by the Hookworm Sanitation Unit in the parish. With the exception of those districts between Hazylymph and Mont Felier, this area nearly coincides with the No. 4 Political division of the parish, and with the completion of work here, nearly ¾ by area and 3-5 by population of the parish will have been sanitated. It is bounded on the east by the Trelawny border, on the south by the St. Elizabeth border, on the west by the Westmorcland border, and on the north partly by the John's Hall—Maroon Town area and partly by the No. 1 Political division of the parish. It is practically divided into two portions by a large tract of woodlands, chiefly belonging to the Crown, through which a single main road winds its way from Mocho to Catadupa. The districts in the south-east portion are served by a belt of roads, some in fair condition, others only negotiable on mule back. The south-west section is better served in this respect, and when the new main road connecting Cambridge with Mount Horeb is completed in another month or two, there should be no great cause for complaint regarding road facilities.

The nature and fertility of the soil in this section vary very much. There are the hills of limestone rock from which valuable timber for railway sleepers, etc., is procured. There are also stretches of what is locally known as "red dirt" (not clay) which produce various crops such as potatoes and yams fairly well, as also bananas when the rainfall is good as it generally is. Still there are the richer alluvial deposits which turn out the staple product, bananas, in good quantities and quality.

There are also great variations in climatic conditions, due to the changes in altitude which range from 600 feet to 2,000 feet above sea level. It would appear that health is better maintained in the higher districts.

The rainfall may be considered fairly good throughout the year. In some places as much as 110 inches were registered, fully 80% of this being recorded between the months of May and October.

The religious needs of the population are taken care of by seven churches represnting recognised denominations. Educational facilities are offered by two Government Schools, the sanitation of which required but little attention, and three Denominational Schools, of which the opposite had to be noted. These latter are, however, receiving attention. In addition, there is a small number of private schools.

For all the schools, lectures were arranged and carried through by the Overseer of Works assisted by one of the Sanitary Inspectors, and although the attendance of adults was not all that could be desired, the effect on those present was stimulated interest in the work. Coupled with this means of enlisting public interest, there were numerous posters and placards put up, as well as pamphlets distributed, individual "talks" being put in as opportunities arose.

The co-operation which the unit received may be regarded as fair. Large planters, small householders, the Public Works and Railway Departments, Chinese Shopkeepers, School Managers and Teachers, all played their part in furthering the work. Special mention might be made of the United Fruit Co., who on their properties, Mocho and Garlands, speeded up their work very admirably, thereby setting a fine example to the adjoining districts. Among the factors which tended to retard the progress of the work might be mentioned, 'heavy rainfall' between the months of May and October. This occasioned the the falling in of a large number of pits, in the Catadupa and Cambridge districts especially, including those of a score of finished latrines, which could not conveniently be redug or stone-packed while the heavy showers lasted. Then the uncertainty of tenure in the cases of many householders, some of whom were merely monthly tenants, in the Lapland and other districts was another feature which caused some difficulty. The erratic buying of bananas was also held forth by some householders as one of their chief causes of delay in proceeding with the work. Slow as has been the work in some quarters, it is nevertheless gratifying to know that the structures when at last completed are of a fairly substantial type.

Cases of absolute refusal to appreciate and comply with the requirements are very rare, but where householders are unduly slow, the legal course has had to be resorted to. There were 114 prosecutions, a small number when it is borne in mind that there are over 2,200 homes in the area. Of these, 75 completed after one or two adjournments in their favour, 7 were withdrawn for various reasons, only 4 were fined, and 28 are still adjourned to the 22nd January, 1932.

It was anticipated, on account of the rocky nature of a few of the districts in the area, that much would have to be done by way of blasting in order to help householders in securing pits for their sanitary conveniences. It was, however, discovered that nature was ready to come to the assistance of many by providing ready-made excavations, locally designated 'save-balls', which could be utilised as pits. There still remained others who have had to depend on the use of the dynamite, and for these, 54, arrangements were made and the work was carried out. The Local Board of Health still facilitates householders with its concession whereby the cost to them is at the minimum.

The Unit was visited on four occasions during the year, when the opportunity was taken of interviewing the Overseer and inspecting some of the work in progress. The visitors included the S.S.M.O., Drs. Washburn, Carley, Opie, Wells, Cole and Mjr. Dunham.

The loyalty of the Sanitary Inspectors has again stood the test of another year's work, and to their faithful efforts must be attributed much of what it has been possible for the Unit to accomplish in the area.

The following figures show the progress of the work:—

	First Inspection.	Last Inspection.
Number of Homes	2,260	2,205
Census	8,801	8,581
Number of Sanitary Latrines found ..	17	1,392
Number of Insanitary Latrines found ..	636	114
Number without Latrines	1,607	699
Number of Unoccupied premises	..	55

The following tabulation shows the work as it has been carried out by the four Sanitary Inspectors.

Inspector.	Homes	Adults	Chldn.	Total.	First Inspection.				Last Inspection.			
					San.	Ins.	Nils.	Un/c. Prem.	San.	Ins.	Nils.	Un/c Prem.
H. J. Watts ..	724	1,744	1,024	2,768	8	135	581	..	441	20	244	19
W. E. Wood ..	593	1,499	1,040	2,539	3	295	295	..	399	35	141	18
R. C. Grey ..	439	877	778	1,655	6	56	377	..	267	5	154	13
C. A. Usherwood ..	504	1,112	727	1,839	..	150	354	..	285	54	160	5
	2,260	5,232	3,569	8,801	17	636	1,607	..	1,392	114	699	55

In addition to this, during the earlier part of the year the Sanitary Inspectors contributed to the completions in Johns Hall—Maroon Town area as follows:—

S. I. Watts	13	completions
" Wood	27	"
" Grey	157	"
" Usherwood	288	"
	485	"

Combining these with the figures given above, the average monthly completions by the Sanitary Inspectors individually, work out as follows:—Watts 37.2; Wood, 35.25; Grey, 34.8; Usherwood, 47.75.

During the year, apart from the work of the Follow-up Officers, the Unit got 1,860 premises provided with sanitary conveniences.

John's Hall and Maroon Town Area.—In February a Follow-up Officer was appointed for this area which was gradually handed over to him between the months of February and July. The division has been worked down very well, there remaining now only 235 homes to be sanitated. Many of these are at present proceeding fairly. It is estimated that there will be 29 indigents and 6 paupers to be provided for by the Local Board of Health.

Blasting was carried out for 18 individuals situate in the Camrose district of this area.

There were 107 prosecutions for the entire year in addition to 35 cases adjourned from December, 1930. Of these there were 101 completions; 13 were fined and 28 were withdrawn.

The following shows the progress of the work to date.

	First Inspection.	Last Inspection.
Number of Homes	2,883	2,791
Census	11,324	10,910
No. of Sanitary Latrines found	13	2,556
No. of Insanitary Latrines found	883	15
No. without Latrines.	1,987	220
Unoccupied premises	..	92

From the above it will be seen that the number of completions to date in the area is 2,543.

The following shows the work in the area for the year:—

Inspection 31.12.30.					Inspection 31.12.31.				
Homes.	San.	Ins.	Nils.	Un/c. Prem.	Homes.	San.	Ins.	Nils.	Un/c. Prem.
2,709	1,875	157	677	79	2,791	2,556	15	220	92

During the year 95 homes were censused and 13 became unoccupied. It will be observed that there were completed during the year, 681 sanitary conveniences. Of these, the Sanitary Inspectors before leaving the area, contributed 485, and the Follow-up Officers, 196.

Adelphi Area:—This area, usually a very dry one, in common with other parts of the parish and Island in general, experienced a very heavy rainfall for some months.

Apart from new homes censused during the year, the majority of the small number of homes left to be sanitated at the beginning of the year was owned by rather poor people, hence the work has been necessarily slow.

There were paupers and indigents who had to be assisted by the L.B.H. Of the latter, 23 have been aided, and have completed their work. There still remain 28 Indigents and 10 Paupers to be provided for.

There were 31 prosecutions of which 12 completed, 5 were fined, and 14 are adjourned to 11.1.32. The following covers the entire work in the areas.

	First Inspection.	Last Inspection.
Homes	1,963	1,925
Census	8,335	8,164
No. of Sanitary Latrines found	33	1,842
No. of Insanitary Latrines found	622	2
No. without Latrines	1,308	81
No. of Unoccupied premises	19	57

During the year there were censused 16 new homes, and the completion of 127 new sanitary conveniences was recorded.

Notes:—The Unit commenced work in the parish of St. James on the 6th March, 1929, practically closing down on the 31st December, 1931. It is interesting to note that during that time, 2 years 10 months, 5,495 new latrines were built and 232 remodelled, making a total of 5,727. It is found that in the areas sanitated there is an average of 4 persons to the home, so that roughly, the completions reached will have made provision for 23,000 persons.

The cost to the L.B.H. so far is £1,945 3s. 8d., of which amount, £1,790 7s. 1d. has been spent as Sanitary Inspectors and Follow-up Officers' salarics and travelling allowances. The difference, £154 16s. 7d. is accounted for by incidental expenses, e.g. stationery and printing, money spent for explosives the bulk of which though collected from householders cannot by the system of Parochial Boards' accounts be credited back, plus what has been spent for indigents so far.

UNIT NO. 1 OF THE JAMAICA HOOKWORM COMMISSION.

SECTION 1.

The Year in brief:—During the year 1931, the Unit continued its Anti-Hookworm Campaign and Public Health Education throughout the Northern Area of the parish of Manchester. This area comprises roughly 165 square miles of territory and has an estimated population of 30,000. The entire area has been divided into three main sections, viz., Christiana, Walderston and Mile Gully; and these are further subdivided into districts. Of the approximate 45 districts into which the sections have been divided, 21 have been worked to a successful termination, 8 are at present under completion, whilst the remaining 16 are awaiting the advent of the Unit's programme. The Unit therefore, has completed over half of the entire area and population of northern Manchester. The total census taken for the year is 11,220; 11,219 were examined for Hookworm disease and 7,630 or 67.9% were found to be infested: 7,354 persons were treated, and of whom 6,787 or 92.2% were cured which necessitated 19,707 total treatments and 10,768 re-examinations. These figures are shown in the following table:—

Census.	First Exams.	Infected.	First Treats.	Total Treats.	Re-Exams.	Cured.
11,220	11,219	7,630	7,354	19,707	10,768	6,787

In addition, 3,997 private patients were examined and of these, 1,561 were treated by the Unit resulting in 732 cures. A total of 3,731 treatments were given and 4,915 re-examinations made of which 2,374 were from the post campaign area conducted by the Parochial Board of Manchester. It will be seen that 30,899 microscopical examinations were made in the laboratory. The percentage of infection in the districts varied from 46.8 to 84.5 with an average of 66.7. It was found that the average degree of infestation was nearly 40 worms per person.

No departure has been made from the "Intensive Methods" of campaign; and the "Group System" is still adopted. Treatment consists of the administration of oil of Chenopodium and Thymol as the active drugs. In the Laboratory specimens are examined by the Willis' Floatation Method and egg-counts are made by the Stoll's Technique.

The sanitation of the area is good and all the latrines are of the pit type. The Unit was successful in bringing about the erection of 140 new latrines and the conversion of 110 insanitary ones into sanitary fly-proof types. The water supply of the area is chiefly obtained from springs and tanks in which rain water is stored; the vast majority of these are "unprotected".

The education of the people is intensely adopted as one of the aims of the Commission and it is gratifying to note the wonderful improvement shown by the masses in this direction. For the period 37 lectures (public and school) were delivered to an estimated attendance of 8,208 persons. In addition the Staff received 20 lectures.

SECTION II.

Description of Area:—The main features of the area have already been described and its boundaries indicated in the Annual Report for 1930. The area as already stated, is divided into three sections, viz.—Christiana, Walderston and Mile Gully.

The Christiana section comprises 14 districts, viz., George North, Coleyville, Struan, Christiana proper, Spring Ground, Silent Hill, Dobson, Huddersfield, Sedburgh, Pike, Devon, Lower Christiana, Bronte and Malton. Of these, nine have been completed, four are nearing completion and the last named Malton, remains to be worked. This section is the most important in the area; and the growing town of Christiana is not only the chief centre in Northern Manchester but also for the very nearby adjoining parishes of St. Ann, Trelawny and Clarendon. It might be mentioned that this part of the island is thought to be one of the most thickly populated, and oft-times it has been suggested that a new parish be formed from parts of these bordering parishes together with a portion of Manchester, with Christiana as its capital. Its altitude is the highest of the three sections and varies from 2,000 to 3,500 feet above sea level. Coleyville which is 3,300 feet above sea level was at one time the site of the Naval Wireless Station. The climate is delightfully cool and embracing, hence Christiana is fast becoming a health resort. The surrounding scenery is exquisitely beautiful. The mean temperature is 68 degrees and the rainfall for the year is about 66 inches. The land is extremely fertile and therefore extensively cultivated; bananas, ginger and coffee being the chief products. There is a marked absence of fruit trees, e.g. mangoes, naseberries, tamarinds, etc.; however, citrus fruits are in abundance. In the region of Silent Hill, Dobson and Coleyville many springs are to be found. In the entire section there are four churches, many mission halls, five schools and three post offices. A Court House, public market and public tank will be found in Christiana; the water supply of Christiana has been fully commented upon in the report of last year. The population is 8,265 of whom the vast majority is of the black race. As elsewhere, superstition exists and in Silent Hill our Nurse experienced difficulty in giving treatments; however the difficulty was soon surmounted. The Walderston Section lies to the south and to the east of the Christiana section and comprises the following districts:—Walderston, Belfield, Chantilly, Bombay, Davyton, Richmond, Cheapside, Blue Mountain, Alison, Banana Ground, Cumberland and Contrivance. Belfield was our most southerly whilst Cumberland our most easterly scene of activity, they were 11 and 12 miles respectively distant from the office. Walderston is the chief centre and derived its name from that of the Rev. Mr. Walder who lived and worked amongst the people of this particular neighbourhood for years. This little town is midway on the main road leading from Christiana to Kendal; from it a parochial road leads to Contrivance and at Mizpah (half a mile away) another parochial road runs south-easterly to all the districts of the section with the exception of Cheapside, Richmond and Contrivance. The section is between 2,000 and 3,000 feet above sea level; it is very mountainous and rocky in some parts, hence it is less thickly populated than the previous described section. The basic stratum is essentially limestone rock with varying amounts of gravel, clay, loam and humus superimposed. The valleys are fertile but the hillsides offer no invitation for agricultural pursuits. The chief products are yams and other "ground provisions". The climate is dry and cool but in the districts of Bombay, Alison and Cheapside it tends to be damp. The people, in the majority of instances, are not particularly industrious, probably owing to the lack of arable lands. As in most rural parts, water supply is by means of tanks in which rain water is stored; and the methods adopted for its collection—barbecues, etc.—are very insanitary, hence liable to pollution. In the section there are three public tanks from which water may be bought at a farthing per kerosene tin. In addition, there are three churches, six schools and two post offices. There are 1,130 homes in this section in which 6,284 inhabitants live—an average of 5 persons per home. All the districts, with the exception of Contrivance and Cumberland, have been closed.

The Mile Gully section is the largest and most northern of the three sections. If divided in an easterly and westerly half it will be found that the former presents a very rocky and precipitous country similar to, if not actually part of, the Cockpit Country in the neighbouring parish of Trelawny; the latter half, on the other hand, although mountainous and rocky is not precipitous. As a result of the rocky nature of the section in the eastern part, cultivation is hardly pursued, hence, we find a light infection. Although commanding a high altitude it slopes gradually towards the north-west into the parish of St. Elizabeth. The chief products are bananas and Irish potatoes, and in the Coley Mountains towards the west coffee is extensively cultivated. The railway traverses this section and divides it in northerly and southerly halves, more or less. Mile Gully and Harry Watch are the principal centres and the Government Stud Farm (Grove Place) is located in this section. Two districts have been successfully completed, viz.: Mile Gully and Harry Watch, whilst two more are being worked at present. By the end of February the full complement of Nurses will be available for the section.

Routine—Field, Laboratory and Office Methods:—No departure has been made from the "Intensive Methods" of campaign and the "Group System" of treatment is still adopted. A complete census of each district is made and all who are co-operative and willing, are given the opportunity of submitting specimens of faeces for microscopic examination. Those found positive to infestation are notified and arrangement is made by the Field Officer for their "Sounding" (physical examination) by the Medical Director. Each person is prescribed for individually. Old age, pregnancy and advanced organic diseases being contra-indications to treatment. After "Sounding" the Field Officer treats the infected persons at some suitable place. The treatment consists of the administration of Oil of Chenopodium and Thymol given alternately after every five days, this being preceded in all instances by a preliminary purge of Jalap. Cases resisting cure after five treatments are generally discontinued. Those cured, are given a certificate to that effect which is valid for three months from the date of cure.

In the laboratory specimens are examined by the Willis' Floatation Method and egg-counts are made of each district by the Stoll's Technique.

The office is situated about a mile from the town of Christiana on the main road to Coleyville. Nurses who are nearby report every alternate day whilst those who are very distant report weekly. Here the staff receives its lectures from the Director.

Sanitation:—All districts treated, had been sanitated by the Parochial Board of Manchester at least six months before the treatment campaign entered the area. As a routine, the Nurses were instructed to make a classification of latrines at the commencement and at the completion of the campaign in every district. All latrines were of the pit type. Efforts to get the people to build and maintain sanitary latrines have met with success; consequently the Unit was able to secure the erection of 140 new latrines and the conversion of 110 defective ones into sanitary fly-proof types. There were 3,093 homes in the area with 17,421 occupants—an average of nearly 6 persons per home. Housing conditions leave much to be desired; in the more rural parts floorless huts, with dark rooms and insufficient openings for air and sunlight, are the only dwellings to be found and in some of the homes there is considerable over-crowding. It is needless to point out how such conditions affect health, morals and progress alike. Many of the people, however, have been newly awakened to the importance of sanitation and general hygiene and are making honest efforts to keep their dwellings and surroundings in a clean condition.

Water supply is obtained from springs and from tanks in which rain water is stored. Both these sources of supply are mostly "unprotected" and therefore, exposed to pollution and infection. Notwithstanding repeated advices, the people will not boil their drinking water. It is pleasing to note that in spite of the exceptional heavy rains occurring towards the middle of the year there were no outbreaks of epidemics.

The latrine classification for the area appears below.

TABLE No. 1.

District. No.	No. of Homes.	First Classification.			Last Classification.			Old made Sanitary.	Newly Constructed.
		D.	E.	F.	D.	E.	F.		
1	45	38	1	6	42	1	2	. .	4
2	143	121	15	7	137	5	1	10	6
3	121	103	2	16	111	5	5	. .	11
4	149	123	5	21	146	. .	3	5	18
5	156	118	25	13	147	9	. .	16	13
6	129	116	2	11	116	5	8	. .	3
7	82	50	20	12	69	12	1	8	11
8	128	111	10	7	126	1	1	9	6
9	121	116	4	1	119	1	1	3	. .
10	154	70	34	50	89	26	39	8	11
11	111	97	3	11	101	1	9	2	2
12	117	99	14	4	112	1	4	13	. .
13	104	89	14	1	102	1	1	13	. .
14	73	66	5	2	67	3	3	2	. .
15	84	82	1	1	81	1	2	. .	. .
16	126	106	3	17	110	2	14	1	3
17	57	55	. .	2	57	. .	. .	. .	2
18	107	95	1	11	102	3	2	. .	9
19	169	132	11	26	145	16	8	. .	18
20	72	55	1	16	59	. .	13	1	3
21	48	36	8	4	41	4	3	4	1
*22	136	91	20	25					
*23	176	163	4	9					
24	63	19	8	36	37	1	25	7	11
25	69	47	15	7	57	7	5	8	2
26	82	73	1	8	78	2	2	. .	6
*27	62	45	7	10					
*28	148	112	24	12					
*29	61	53	6	2					
Totals	3,093	2,481	264	348	2,251	107	152	110	140

* With regard to these districts no figures appear under "last classification" as they are still under operation and not yet closed.

Educational Campaign:—The education of the people in health matters underlies the work of the Commission and this is rigidly maintained as one of its chief aims and objectives. The Commission "has attempted not only to lighten the burden of Hookworm infestation..........but, through the medium of an attack on this disease, to awaken an intelligent public interest in hygiene, in modern scientific medicine and in practical measures for permanent public sanitation and to establish permanent agencies for the promotion of these things." Keen interest in the prevention of soil pollution and in other health problems has been aroused through such media as pamphlets, charts, circulars, posters, "talks," lectures, microscopic demonstrations, lantern slides and moving picture films. Nurses and Director embrace every opportunity whilst visiting homes to advise on matters relative to hygiene, sanitation and preventable diseases. Lectures are constantly given to the public, to the schools and to the staff. Of inestimable value in diffusing knowledge on health matters amongst the people is the Health Bulletin published by the Bureau of Health Education; hundreds of copies are distributed by our Nurses to homes, which have proved a great and valuable aid in our cause. As a result of health education the masses are undoubtedly beginning to see and realise the benefits and values of hygiene and sanitation; consequently the Commission has won the whole-hearted support and co-operation of the public.

Health Week was observed during the month of October from the 4th to the 10th and the Unit availed itself the opportunity of carrying out an extensive and ambitious programme throughout the area. More work might have been accomplished were it not for the very heavy rains that fell during the week; nevertheless, we were successful in fulfilling the greater part of our programme. 13 lectures were given to an estimated attendance of 3,000. At Christiana, Walderston and Coleyville the Play "Better Health for Jamaica" was staged by the school children, and to which the public was invited. The children performed their parts ably and fully deserved high commendation. Many influential citizens threw in their lot and co-operated by giving addresses. Special mention must be made of the following gentlemen:—Hon. C. A. Reid, M.L.C., Rev. Mr. Jolly, Rev. Mr. Kaltrieder, Rev. Mr. O'Meally, Rev. Mr. Watler, Rev. Mr. Pouchie, Mr. C. D. Neilson, Inspector of Schools, Mr. Myers, Asst. Inspector of Schools, all school masters Mr. H. Herson, M.P.B., Mr. Charles Shilletto, who kindly gave us the use of the theatre in Christiana. A total of 56 lectures were given in the area from the start of the campaign, 37 of which were delivered this year. In addition, the staff received 20 lectures for the year. The following table presents the lectures given for 1931:—

TABLE NO. 2.

Date.	Place.	Material.	Lecturer.	Attendance.
February	Devon School	Hookworm Disease	Dr. Watson	200
	Zorn School	do.	do.	180
March	Middlesex School	Hygiene	do.	170
	Silent Hill	Lantern Lecture	do.	300
	Blue Mountain	do.	do.	300
	Belfield School	Habits	do.	160
	Bombay School	Habits and Character	do.	104
April	Richmond	Lantern Lecture	do.	200
May	Davyton	do.	do.	150
	Huddersfield	do.	do.	100
June	Davyton School	How to keep well	do.	77
July	Mile Gully	Lantern Lecture	do.	200
	Bombay	do.	do.	250
	Christiana	Cinema Films (Hookworm T.B. and teeth)	do.	500
	Harry Watch	Lantern Lecture	do.	350
August	Banana Ground	do.	do.	350
October	Christiana	Tuberculosis	do.	1,000
	Mt. Olivet School	Health	do.	78
	Bombay School	Hygiene and Sanitation	do.	115
	Belfield School	Health	Mr. Edwards	123
	Walderston	Hygiene and Sanitation	Dr. Watson	300
	Chantilly School	Habits and Health	do.	44
	Mizpah School	Health and M'scopic Demon.	Mr. Heslop	132
	Banana Ground	Cleanliness and do.	Dr. Watson	101
	Coleyville	Health	Rev. Pouchie	300
	Harry Watch	Health & V.D.	Mr. Edwards and Dr. Watson	300
	Bryce School	School Hygiene	do.	44
	Mile Gully School	Hygiene and Sanitation	do.	46
	Devon	Lantern Lecture	do.	400
	Sedburgh	do.	do.	100
	Coleyville	Personal Hygiene	do.	200
	Pike	Lantern Lecture	do.	300
November	Endeavour	do.	do.	250
	Pike School	Bacteria and M'scopic Demon.	do.	56
	Endeavour School	do.	do.	48
	Devon School	do.	do.	80
	Christiana	V. D. & Film (Men only)	Drs. McKenley and Pengelley	600

SECTION III.

Treatment Campaign:—At the commencement of the year, the Unit began operations with nine Nurses, but in August this number was reduced to eight. Activities were confined to the Christiana and Walderston sections until June, when the Mile Gully division was added to the list. Two Nurses were drafted from the Walderston section to start the campaign in Mile Gully proper and Harry Watch, these being the first two principal centres in the section. There are now four Nurses engaged in the Christiana section, whilst two each are in the Walderston and Mile Gully Sections. By the end of February the full complement of Nurses will be available for the Mile Gully section. The treatment campaign was conducted in 29 districts and 21 of these were brought to a successful termination. (Districts Nos. 1, 2, 4, 5, 7, 10, 11, 16, 21 in the Christiana Area, Districts Nos. 3, 6, 8, 9, 12, 13, 14, 15, 17, 20 in the Walderston Section and Districts Nos. 18 and 19 in the Mile Gully Section.) The census taken to date is 17,421 which gives an average of 600 persons to each district—this being regarded a large number. The people gave whole-hearted and excellent co-operation as 99.74% of the entire population submitted specimens for miscroscopic examination; only 26% failed to do this. Of the 17,377 persons examined, 11,466 or 65.9% were found to be infested—which is comparatively high. The percentage of infection ranged from 46.8 to 84.5 in the districts whilst the average was 66.7. Although the infection was wide-spread yet its degree of intensity was light—the average number of worms per person being about 40. Of the infected person, 10,638 or 92.7% were treated, and 9,235 or 86.8% of the cases treated were cured. The highest percentage of cures was obtained in the district of Banana Ground by Nurse Ramsay—97.7% whilst the lowest—69.9% is to be observed in district 5, viz., Christiana. This was mainly due to the many changes of Nurses in charge of this district.

The following table gives the figures of the area to date:—

TABLE NO. 3.

District. No.	Names.		Census.	Examd.	Infected.	% Infected	Treated.	Cured.	% Cured.
1	George North	(Closed.)	259	255	183	71.4	177	150	84.7
2	Coleyville	"	916	914	586	64.1	556	504	90.6
3	Walderston	"	650	648	428	66.04	389	341	87.6
4	Struan	"	875	872	550	63.07	519	471	90.7
5	Christiana	"	989	978	534	54.6	451	316	69.9
6	Belfield	"	719	718	414	57.6	381	341	89.4
7	Spring Ground	"	440	437	305	69.7	286	220	76.9
8	Chantilly	"	668	667	424	63.5	391	355	90.7
9	Bombay	"	702	701	445	63.4	411	369	89.5
10	Silent Hill	"	865	863	644	74.6	606	549	90.4
11	Dobson	"	768	768	649	84.5	618	586	94.8
12	Davyton	"	576	576	412	71.8	391	374	95.6
13	Richmond	"	585	585	430	73.5	414	347	83.8
14	Cheapside	"	361	361	248	68.6	225	205	91.1
15	Blue Mountain	"	493	493	304	61.6	285	278	97.5
16	Huddersfield	"	712	712	443	62.2	421	387	91.9
17	Allison	"	337	336	267	79.4	247	224	90.6
18	Mile Gully	"	589	589	276	46.8	254	246	96.8
19	Harry Watch	"	849	846	541	63.8	506	487	96.2
20	Banana Ground	"	505	505	412	81.5	397	388	97.7
21	Sedburgh	"	241	240	161	67.8	151	131	86.7
	Total		13,099	13,064	8,656	67.1	8,076	7,269	89.6
22	Pike	(In Operation)	854	853	679	79.6	633	566	89.4
23	Devon	"	892	888	506	56.9	477	405	84.9
24	Cumberland	"	304	303	232	76.5	211	167	79.1
25	Lower Christiana	"	486	486	306	62.9	286	270	94.4
26	Endeavour	"	430	430	231	53.7	213	192	90.1
27	Bronte	"	328	328	241	73.4	232	145	62.5
28	Hibernia	"	644	641	350	54.5	277	83	29.9
29	Contrivance	"	384	384	265	69.01	233	138	59.2
	Grand Total ..		17,421	17,377	11,466	66.76	10,638	9,235	85.2

N.B.—85.2 is the average per cent of cures per district.

The following table shows an analysis of the figures for the closed districts:—

TABLE NO. 4.

STATISTICS OF CHRISTIANA AREA.

(Closed districts 1—21).

1. Census		13,099
a. No. removing before examination ..	24	
b. No. dying before examination ..	3	
c. No. refusing examination	8	
2. Number available for examination		13,064 or 99.7%
3. Number examined		13,064 or 99.7%
4. Number found infected		8,656 or 66.2%
a. No. not treated for medical reasons ..	385	
b. No. removing before receiving treatment ..	156	
c. No. dying before receiving treatment ..	8	
d. No. not located for treatment ..	12	
e. No. refusing to take treatment ..	7	
5. Number available for treatment		8,088 or 93.4%
6. Number treated		8,076 or 99.8%
a. No. discontinuing treatment for medical reasons	48	
b. No. removing before being cured ..	166	
c. No. not located for further treatment	10	
d. No. refusing further treatment	21	
e. No. discontinuing after 5 or more treatments	357	
f. No. dying before being cured	3	
7. Number possible to cure		7,471 or 97.3%
8. Number cured		7,269 or 97.2%

TABLE No. 5.

STATISTICS OF CHRISTIANA AREA.

(Districts in progress 22–29).

1. Census		4,322
a. No. removing before examination	3	
b. No. not located for examination	1	
c. No. refusing examination	1	
2. Number available for examination		4,317 or 99.8%
3. Number Examined		4,313 or 99.7%
4. Number found infected		2,810 or 65.1%
a. No. not treated for medical reasons	123	
b. No. removing before receiving treatment	14	
c. No. not located for treatment	2	
5. Number available for treatment		2,671 or 95.5%
6. Number treated		2,562 or 95 9%
a. No. discontinuing treatment for medical reasons	2	
b. No. removing before being cured	14	
c. No. discontinuing after 5 or more treatments	7	
7. Number possible to cure		2,539 or 99.1%
8. Number cured		1,966 or 76.7%

Work of Nurses:—With the exception of one, who ultimately was discharged, all the Nurses proved themselves to be an able body of men, performing their duties conscientiously and well. They worked arduously and loyally not only to make the Commission a success in eradicating Hookworm Disease, but also to bring about a correct and intelligent public opinion in matters pertaining to Public Health.

The following table compares their results:—

TABLE No. 6.

Nurse.	District Nos.	No. of Actual Working days.	Percentage of cures.	Av. percentage of cures (Closed Dists.)
G. V. Ramsay	6	..	89.4	..
	15	..	97.5	..
	20	..	97.7	..
	*27	277	62.5	94.8
E. R. Banks	8	..	90.7	..
	12	..	95.6	..
	18	..	96.8	..
	*26	278	90.1	94.3
E. J. Fletcher	2	..	90.6	..
	11	..	94.8	..
	*22	283	89.4	92.7
G. E. Richards	3	..	87.6	..
	14	..	91.1	..
	19	..	96.2	..
	*28	283	29.9	91.6
C. N. Gentles	4	..	90.7	..
	16	..	91.9	..
	*23	290	84.9	91.3
N. S. Gabay	10	..	90.4	..
	*25	264	94.4	90.4
I. M. Condell	9	..	89.5	..
	17	171	90.6	90.05
H. M. Gray	13	..	83.8	..
	*24	227	79.1	83.8
L. I. Miller	1	..	84.7	..
	7	24	76.9	80.8
T. W. Patterson	5	..	69.6	..
	21	..	86.7	..
	*29	279	59.2	78.15

*These districts are still under operation therefore not yet closed. Nurses Miller and Condell left the Unit during the year. Judging from the figures given in the preceding table, it can be said that on the average a nurse completes a district with a census of 600 having an infection of 66.7% within four months.

Post Campaign Work:—This phase of activity still continues and at present it is being performed by two Sanitary Inspectors employed by the Parochial Board of Manchester. The "follow-up" work is being carried out in districts of the last two areas (Cross Keys and Mandeville) which were already operated by the Unit. All miscroscopic examinations of specimens from the post campaign area were made in the Unit's laboratory and these numbered 2,374 for the year. The department supplies the necessary drugs for the treatment of these cases.

The average residual infection of the closed districts for the year is 8 2; this will be more fully dealt with later in the report.

Private Treatments:—This feature of our work grew to such large proportion that the department reluctantly found it advisable to suspend giving treatments to new patients from the 15th of June. Of course, those undergoing treatment before this date were allowed to continue until cure was effected. There were many reasons forcing us to adopt this measure, e.g. ,the under treatment among such patients was very high, the inadequate accommodation for the patients, the inconvenience to the general work of the laboratory, especially when new districts were being opened, many patients coming from homes in which there were no sanitary latrines, the vast majority being from the neighbouring parishes of Clarendon, St. Ann and Trelawny.

Rate and Degree of Infestation:—In the area 11,466 persons or 65.9% of the population were found to be infested; this when compared with past figures presents a high infection rate; the infection can therefore be regarded as fairly wide-spread. In the districts the rate varied from 46.8 to 84.5% and in the section of Christiana the incidence was greatest. Especially was this observed in an extremely fertile valley extensively cultivated in bananas, four miles in length situated immediately north of the town of Christiana and bordering on to the parish of Trelawny; here infection averages nearly 75%. Of course, besides the type of cultivation, there were other epidemiological factors accounting for this, e.g. the existing type of soil, necessary amount of moisture, adequate rainfall and to some degree defication habit or soil pollution. On the other hand, the infection rate was lowest in the Mile Gully section, this being 55%. This was expected as the nature of the soil tends to be gravelly, consequently, cultivation is on a small scale and soil pollution becomes limited.

The degree of infestation was obtained by employing the Stoll's Formula after the estimation of egg-counts was obtained. It was found that the average infestation was 40 worms per person—this is regarded as light, however, very wide variations were seen, some persons had as few as 2 worms whilst others have had as many as over 300.

Clinically, the vast majority of the cases was slight, occasionally a moderate one was seen, but marked cases were absent. The most common symptoms were insomnia, and complaints referrable to the digestive system, e.g., uneasiness in the epigastrium, gastralgia and a tendency to meteorism or tympanites especially in children. Of 120 slight cases the haemoglobin percentage was between 60 and 70. Even with an infestation of over 300 worms, such an individual presented hardly any obvious ill-effects. However, many of the examined showed definite signs of ill health and lowered efficiency, but malnutrition, other devitalising influences and the inflictions of poverty seemed to be the primary cause. The following table shows the rate and degree of infestation in the districts:—

TABLE No. 7.

District.	Infected.	% Infection.	No. egg-counted.	Lowest No. Worms found.	Highest No. Worms found.	Av. No. of Worms per infected person.
1	183	71.4	13	2	181.8	40.3
2	586	64.1	10	18.1	127.2	51.7
3	428	66.04	12	4.5	72.6	37.5
4	550	63.07	14	2	350	55.2
5	534	54.6	13	9	109	50
6	414	57.6	3	4	27.2	14.9
7	305	69.7	11	2	109	52
8	424	63.5	9	9	72.6	33.2
9	445	63.4	9	18.1	59	37.3
10	644	74.6	16	18	198.8	86
11	649	84.5	14	18.1	90.8	42.4
12	412	71.8	10	18.1	54.5	38.5
13	430	73.5	17	9	100	38.4
14	248	68.6	6	27.2	90.8	47.6
15	304	61.6	11	2	45.4	24.9
16	443	62.2	10	2	309	64.4
17	267	79.4	13	9	72.6	33.1
18	276	46.8	19	4.5	286.2	45.1
19	541	63.8	14	2	59	16.9
20	412	81.5	16	2	27.2	10.4
21	161	67.8	8	4	77.2	29.9
22	679	79.6	21	2	254.5	36.3
23	506	56.9	19	2	50	19.1
24	232	76.5	7	4.5	127.2	51.9
25	306	62.9	6	2	68.1	20.6
26	231	53.7	8	2	150	27.7
27	241	73.4	5	13.6	31.7	21.7
28	350	54.5	18	2	222.6	34.9
29	265	69.01	15	2	131.8	40

The following table shows the ratio of number cured to number examined after treatments:—

TABLE No. 8.

Ratio of Number Cured to Number examined after:—

District No.	1 Treat.	2 Treats.	3 Treats.	4 Treats.	5 Treats.	6 Treats.	7 or more Treats.
1	90.146	40.81	13.24	6.19	1.4	..	..
2	0.1	398.549	0.1	78.135	17.53	5.29	6.16
3	3.4	235.380	3.7	63.125	28.59	8.24	1.7
4	..	283.509	..	117.209	45.85	18.38	8.22
5	16.17	184.391	1.3	79.164	31.68	4.21	1.4
6	7.10	222.366	..	70.141	37.62	4.13	1.2
7	5.8	167.259	4.7	41.66	3.6	..	..
8	5.9	270.379	1.1	66.100	12.32	1.9	..
9	..	237.408	..	88.165	36.72	7.13	..
10	..	344.599	3.3	134.238	46.100	17.40	5.14
11	3.3	424.611	1.3	107.183	31.72	14.33	6.16
12	1.1	318.388	1.1	42.65	9.22	3.8	..
13	..	241.408	66.162	32.88	6.33	2.12	0.2
14	0.1	156.223	0.1	43.59	3.14	3.8	0.2
15	8.8	202.277	3.3	54.71	9.15	2.4	..
16	..	284.417	80.127	19.38	4.10	..	..
17	5.5	172.235	4.4	27.53	13.22	2.3	1.1
18	1.1	200.252	2.2	39.48	4.5	..	..
19	4.6	394.496	2.2	70.105	14.33	3.5	..
20	..	298.396	5.5	70.93	14.19	1.2	..
21	..	98.150	..	25.50	8.22	0.4	..
Totals	148.220 67.2%	5167.7774 66.4%	189.356 53.08%	1270.2195 57.8%	371.798 46.4%	94.266 35.3%	29.86 33.7%

It will be seen that many cases resist cure after 7 treatments and in some cases up to 12 treatments were given without effecting cure. Probable causes might be—re-infection during treatment, not adhering to instructions re the not taking of food immediately before and after treatment and may be, some abnormal condition of the intestinal mucosa.

The table on the following page shows the state of affairs of the closed districts at the start and close of the treatment campaign.

TABLE No. 9.

District No.	1st Exams.	Re-Exams.	1st Treats.	Total Treats.	At Start of Campaign		At Close of Campaign		Percentage of Residual Infection.
					Negative	Infected.	Negative	Infected	
1	255	274	177	333	73	183	223	28	10.9
2	914	784	556	1,483	328	586	832	65	7.1
3	648	606	389	1,135	220	428	561	66	8.1
4	872	863	519	1,555	322	550	793	51	5.08
5	978	668	451	1,297	444	534	760	123	12.5
6	718	594	381	1,102	304	414	645	63	8.7
7	437	346	286	762	132	305	352	66	15.1
8	667	531	391	1,014	243	424	598	60	8.9
9	701	658	411	1,219	256	445	625	62	8.8
10	863	994	606	1,845	219	644	767	70	8.1
11	768	921	618	1,723	119	649	706	54	7.03
12	576	485	391	942	164	412	538	36	6.2
13	585	705	414	1,315	155	430	502	71	12.1
14	361	308	225	589	113	248	318	25	9.6
15	493	378	285	726	189	304	467	23	4.6
16	712	592	421	1,147	269	443	566	41	5.7
17	336	323	247	619	69	267	293	30	8.9
18	589	308	254	610	313	276	559	28	4.7
19	846	626	506	1,226	305	541	792	44	5.2
20	505	515	397	1,006	93	412	481	23	4.7
21	240	226	151	427	79	161	210	29	12.08
Total	13,064	11,705	8,076	22,075	4,409	8,656	11,678	1,068	8.2

At the close of the campaign in the 21 closed districts 1,068 persons remained positive. This gives the average percentage of residual infection as 8.2 per district. 357 persons were discontinued after receiving 5 or more treatments and 385 persons could not be treated for medical reasons. It is to be hoped that with the help of the post campaign activity and with the proper maintenance of sanitation in the area the residual infection will be still lowered and Hookworm Disease controlled.

Other Helminthes.

TABLE No. 10.

District No.	Census.	Ascaris.	Percentage.	Tricocephalus.	Percentage.	Strongyloides.
1	259	127	49.6	129	50.3	2
2	916	320	35.01	309	33.8	2
3	650	325	50.1	300	46.2	..
4	875	299	34.2	412	47.2	..
5	989	272	27.8	342	34.9	3
6	719	183	25.4	181	25.2	2
7	440	173	39.5	186	42.5	2
8	668	320	47.9	276	41.3	2
9	702	344	47.6	245	34.9	3
10	865	110	12.7	55	6.3	5
11	768	132	17.1	31	4.03	1
12	576	134	23.2	40	6.9	1
13	585	68	11.6	42	7.2	1
14	361	92	25.4	19	5.2	..
15	493	97	19.6	24	4.8	1
16	712	47	6.6	22	3.08	2
17	337	64	19.04	4	1.1	..
18	589	165	28.01	99	16.8	..
19	849	200	23.6	98	11.5	9
20	505	126	24.9	64	12.6	..
21	241	88	36.8	63	26.2	..
Totals	13,099	3,686	28.8	2,941	22.0	36

SECTION IV.

During the year many notable persons visited the office. Special mention must be made of the visit by Dr. Rufus Cole of the Hospital of the Rockefeller Institute, New York, who was accompanied by Dr. Eugene L. Opie, Tuberculosis Expert, Dr. Clifford Wells and Dr. Washburn, and also of the visit by Major G. C. Dunham, M.C.U.S. Army, Canal Zone. On these occasions a demonstration of how the Unit conducts its operations was shown by the staff. Dr. Kirkpatrick of the Natural History Department of the British Museum also visited the office.

Personnel:—During the year some changes were made in the staff. Dr. Parkin left to take up duties with the X-Ray Department of the Public Hospital, Kingston; he was succeeded by Dr. Watson. In August, Mr. F. G. Somers, Chief Clerk, was transferred to Unit No. 2. Nurse N. S. Gabay was taken on in January to succeed Nurse N. Bellamy who was discharged. Nurse L. I. Miller resigned in February and was succeeded by Nurse H. M. Gray, whilst Nurse I. M. Condell was discharged.

Present Personnel:—Dr. L. M. Watson, Medical Director.
Mr. E. S. Edwards, Chief Clerk.
Miss G. L. Livingstone, Assistant Clerk and Typist.
Mr. O. A. Harris, Assistant Clerk
Mr. R. S. Heslop, Chief Microscopist.
Mr. O. L. Levy, Assistant Microscopist.
Mr. F. J. Fletcher, Field Officer
Mr. G. V. Ramsay "
Mr. G. E. Richards "
Mr. E. R. Banks "
Mr. T. W. Patterson "
Mr. C. N. Gentles "
Mr. N. S. Gabay "
Mr. H. M. Gray "
Adina Sinclair, Caretaker.

UNIT NO. 2 OF THE JAMAICA HOOKWORM COMMISSION.

SECTION 1.

The Year in brief:—During the year 1931, the campaign was conducted in the central and eastern portions of the parish of St. Thomas.

The treatment of the Morant Bay Area, which was commenced in July of the previous year, was completed in August. In this area there were 9 districts in which work was being carried on at the end of 1930. These and 10 other districts were successfully completed.

The Bath area was opened at the beginning of May. Treatment has been carried out in 13 districts, 6 of which have been completed.

The total census for the year is 12,785. 12,788 persons were examined for Hookworm Disease, and 9,082 or 70.2% found to be infected; 8,085 were treated, and 7,238 cured.

There were also 76 persons examined as private patients, 27 of whom were found to be infected.

Staff Organisation—The main office was located in Morant Bay during the first four months of the year. It was then transferred to Bath, and has remained there.

A sub-office, under the charge of Nurse Oliver, was opened at Trinity Ville in January to facilitate the supervision of the work of the nurses in the adjoining districts. It was closed at the beginning of April, and at the end of the month another sub-office, with Nurse East in charge, was established at York. The Medical Director paid regular visits to these sub-offices.

Personnel:—A number of changes have occurred in the staff during the course of the year.

Mr. E. S. Edwards, Chief Clerk, was transferred on the 15th August to Unit No. 1 to act in a similar capacity. His place has been taken by Mr. F. G. Somers, formerly Chief Clerk of Unit No. 1.

Nurse C. C. Anderson resigned on the 31st January and his place was filled by the appointment of E. N. McGraham as a field officer.

Nurse C. J. Stuart resigned on the 15th July to take up an appointment with the Tuberculosis Commission.

Mr. P. A. Hyde was appointed to the field Staff in place of Nurse E. N. McGraham, who was dismissed on the 15th July.

Nurse J. A. Morris resigned on the 15th November, and his place has been taken by Mr. H. W. Jones.

Mr. L. C. Motta, Microscopist, resigned on the 15th November to join the Portland Health Unit. Mr. S. G. Allen has ben appointed to fill the vacancy thus created.

Since the middle of July, the number of nurses has been reduced from nine to eight in order to reduce the expenses of the Unit.

The members of the Staff have maintained the high standard of efficiency reached in previous years. The present personnel is as follows:

Medical Director—Dr. H. S. Lawrence.
Chief Clerk —Mr. F. G. Somers.
2 Assistant Clerks—Mr. A. Lindo and Mr. R. J. Moody.
2 Microscopists—Mr. O. L. Atterbury and Mr. S. G. Allen.
8 Nurses—Messrs. C. J. Hayles, P. M. East, S. A. Dougherty, R. S. Oliver, A. J. Harding, V. A. McKenzie, P. A. Hyde and H. W. Jones.

Treatment and Laboratory Methods:—As in previous years Oil of Chenopodium and Thymol have been the drugs employed, and the maximum number of treatments given to an individual has usually been limited to five. In some of the districts of the Morant Bay area only a small percentage of the persons treated were found to require more than four treatments. In the Bath area an attempt was therefore made to reduce the maximum number of treatments per individual to four—the dosage being slightly increased at the same time. As the results were not satisfactory the former practice of giving five treatments was resumed. It has been found that cures are not as readily obtained in the Bath area where the percentage infected is 76% as in the Morant Bay area in which the rate of infection was 59.2%.

The Willis' Flotation Method has been used in the examination of specimens in the laboratory. A total of 26,940 examinations have been made.

A recent modification of the Stoll egg-count technique has been employed in determining the average individual infection.

Sanitation:—The Sanitation Unit under the direction of the late Mr. J. R. Walker and Mr. B. B. Duncanson conducted campaigns in the Morant Bay and Bath Demonstration areas about three years ago. Sanitation has since been carried on by Sanitary Inspectors specially appointed by the Parochial Board. Most of the latrines were found, on entering the area, to be in good condition, while others had fallen into disrepair. The nurses, however, have endeavoured to improve the sanitation in each district, and their efforts have produced very encouraging results.

Educational Campaign:—Intesnsive educational work has been done as in previous years. The nurses gave house to house talks and distributed leaflets and microscopic demonstrations were given in all the districts. The interest and co-operation of the teachers in the area were secured, and by means of health posters and school lectures the health education of the school children was furthered. Lectures illustrated with films, lantern slides and charts served to stimulate the interest of the general public in health matters.

48 lectures were given to approximately nine thousand six hundred and fifty-seven persons. The list is as follows:—

Date.	Place.	Attendance.	Lecturer.
16.1.31	Somerset	400	Dr. H. S. Lawrence
13.1.31	Church Corner	50	Mr. C. J. Stuart.
20.1.31	Mt. Lebanus	200	Dr. H. S. Lawrence
22.1.31	Middleton School	101	do.
22.1.31	White Hall School	101	dol.
26.1.31	White Hall	450	do.
27.1.31	Middleton	200	do.
9.2.31	Font Hill	200	do.
24.2.31	Leith Hall	350	do.
10.3.31	Cottage Pen	200	do.
18.3.31	Somerset School	105	do.
26.3.31	Font Hill School	113	do.
27.3.31	Spring Garden	300	do.
24.4.31	Morant Bay Govt. School	162	do.
12.5.31	Bath	600	do.
14.5.31	Bath	600	do.
20.5.31	Bath	500	do.
21.5.31	Water Valley	350	do.
8.7.31	Golden Grove School	204	do.
24.7.31	Pilot	250	do.
29.7.31	Duckenfield	200	do.

Date.	Place.	Attendance.	Lecture.
25.8.31	Pilot School	77	Dr. H. S. Lawrence
24.9.31	Amity Hall	300	do.
6.10.31.	Bath School	96	Mr. O. Atterbury
7.10.31	Golden Grove School	25	Dr. H. Lawrence
7.10.31	Amity Hall School	50	do.
7.10.31.	Airy Castle School	75	do.
7.10.31	Dalvey School	40	do.
7.10.31	Airy Castle	130	Mr. F. G. Somers
7.10.31	Pilot	100	Dr. H. S. Lawrence
8.10.31	Winchester School	74	do.
8.10.31	Port Morant School	65	do.
8.10.31	Sunning Hill School	30	do.
8.10.31	Spring Bank	83	Messrs. Moody and McKenzie
8.10.31	Hayfield	51	Messrs. Atterbury and Moody
8.10.31	Winchester	100	Mr. F. G. Somers
8.10.31	Dalvey	400	Dr. H. S. Lawrence.
9.10.31	Bath School	65	do.
9.10.31	Pilot (Health Play)	150	Mr. A. J. Harding
9.10.31	Beacon Hill	40	Messrs. Atterbury and Motta
9.10.31	Bath	200	Dr. H. S. Lawrence
11.10.31	Mansfield	200	Messrs. Dougherty and Moody
11.10.31	Thornton	300	Mr. C. J. Hayles
12.10.31	Port Morant	300	Dr. H. S. Lawrence
14.10·31	Golden Grove	500	do.
14.10.31	Bath (Health Play)	300	Mr. F. G. Somers
19.11.31	Mt. Stewart	120	Dr. H. S. Lawrence
30.11.31	Sunning Hill	150	do.

SECTION II.

(A) *The Campaign in the Morant Bay Area.*

(1) *Description of Area:*—A description of the area was given in the report for 1930.

(2) *Treatment Campaign:*—Treatment in this area was begun in July 1930, and concluded in August this year. 8 districts had been completed at the end of 1930, and work had been commenced in 9 others. In addition 10 new districts were opened in the area and duly completed.

A sub-office with nurse Oliver in charge was maintained at Trinity Ville from January to April as it was difficult for the men working in the districts of Mount Lebanus, Somerset and Font Hill to report at the main office at Morant Bay.

On the removal of the main office to Bath at the end of April, the work of the men who were left in the Morant Bay area was supervised through a sub-office, which was opened at York. Nurse East was in charge of this sub-office.

A comparatively large number of persons found infected could not be treated for medical reasons. In many cases this was due to the fact that they were suffering from Yaws. In some districts as many as 10% of those who attended the "Soundings" exhibited typical manifestations of the disease. It was particularly noticeable in the hilly districts, e.g. Whitehall, Middleton and Font Hill where the rainfall is high and the soil composed chiefly of clay. The following table gives the final figures for the 27 districts of the Morant Bay area:—

Table No. 1.

District. No.	Name.	Census.	Examined.	Infected.	Percentage of Infection.	Treated.	Cured.
1	*Trinity	331	331	188	56.7	176	173
2	*White Horses	506	503	198	39.3	188	184
3	*Seaforth	383	381	222	58.2	208	204
4	*Water Valley	379	378	229	60.5	211	204
5	*White Hall A.	403	398	315	79.1	291	253
6	*Danver s Pen	390	387	271	70.0	232	202
7	*John's Town	565	563	391	69.4	337	305
8	*Port Morant A.	423	422	199	47.1	185	168
9	Duhaney's Pen	526	521	277	53.1	252	220
10	Morant Bay A.	956	949	297	31.2	269	254
11	Coley	402	401	236	58.8	207	192
12	Port Morant Bay	583	582	274	47.0	244	217
13	York, A	418	418	251	60.0	217	207
14	Huntley	361	359	226	62.9	202	177
15	Industry Hill	230	228	149	65.3	133	110
16	Morant Bay B	655	649	246	37.9	214	204
17	Mount Lebanus	575	575	317	55.1	279	266
18	Somerset	604	597	418	70.0	377	359
19	Church Corner	528	525	227	43.2	212	201
20	White Hall B	620	612	429	70.0	394	354
21	Middleton	618	614	451	73.4	375	334
22	Leith Hall	1,148	1,138	651	57.2	536	459
23	Font Hill	1,102	1,097	798	72.7	689	555
24	Spring Garden	618	613	438	71.4	346	262
25	York, B.	454	454	319	70.2	253	247
26	Serge Island	425	425	287	67.5	236	227
27	Nutts River	279	273	228	83.5	187	173
Totals		14,482	14,393	8,532	59.2	7,450	6,711

* Districts completed during 1930.

(3) *Rate and Degree of Infection:*—The rate of infection varies from 83.5% in district No. 27, Nutts River, to 31.2% in district No. 10, Morant Bay A—the average being 59.2%.

The districts may be divided into 3 groups as shown in Table 2. Group 1—Districts with an infection over 65%.

All the districts in this group, with the exception of districts No. 27, Nuts River, and district No. 7 John's Town, are situated in the hills which form the northern boundary of the Area. There the rainfall is heavy and the soil clayey.

The districts of Nutts River and John's Town lie nearer the sea coast on a high ridge, an offshoot of the main range, and in them sanitation was only recently completed.
Group II—Districts with an infection between 50% and 65%.

This groups embraces the districts situated in the valley of the Johnson River. Here proper sanitation has been instituted earlier than in the districts of the preceding group, the rainfall is lower, and the soil more sandy. Group III—Districts with an infection below 50%.

This group comprises the towns of Morant Bay and Port Morant which have long been properly sanitated. It includes also the district of White Horses, also situated on the sea-coast, where the soil sandy and the rainfall comparatively low.

TABLE NO 2.

District No.	Name.	Census.	Examined.	Infected.	Percentage of Infection.
27	Nuts River	279	273	228	83.55
5	White Hall A	403	398	315	79.1
21	Middleton	618	614	451	73.4
23	Font Hill	1,102	1,097	798	72.7
24	Spring Garden	618	613	438	71.4
25	York B	454	454	319	70.2 Group I
6	Denver's Pen	390	378	271	70.0
20	White Hall B	620	612	429	70.0
18	Somerset	604	597	418	70.0
7	John's Town	565	563	391	69.4
26	Serge Island	425	425	287	67.5
15	Industry Hill	230	228	149	65.3
14	Huntley	361	359	226	62.9
4	Water Valley	379	378	229	60.5
13	York A	418	418	418	60.0
11	Coley	402	401	236	58.8 Group II
3	Seaforth	383	381	222	58.2
22	Leith Hall	1,148	1,138	651	57.2
1	Trinityville	331	331	188	56.7
17	Mt. Lebanus	575	575	317	55.1
9	Duhaney's Pen	526	521	277	53.1
8	Port Morant A	423	422	199	47.1
12	Port Morant B	583	582	274	47.0
19	Church Corner	528	525	227	43.2
2	White Horses	506	503	198	39.3 Group III
16	Morant Bay	655	649	246	37.9
10	Morant Bay A.	956	949	297	31.2
	Totals	14,482	14,393	8,532	59.2

(4) *Work of the Nurses:*—The Nurses have shown keen interest in the different phases of their work. In addition to obtaining a high percentage of cures, they have done much to improve the health habits of the people in each district.

In the case of Nurse McGraham, whose percentage of cures is much lower than the average, he had to leave before the completion of his district. The results are summarised in the following table:—

TABLE NO. 3.

No.	Name.	District No.	No. of actual working days.	Cures.	Percentage of cures.	Av. Prceent-age of cures.
1	C. C. Anderson ..	3	71	204	98.1	
		13	87	207	95.4	96.7
2	P. M. East	4	54	204	96.7	
		10	83	254	94.4	
		16	68	204	95.3	
		25	82	247	97.6	96.0
3	R. S. Oliver ..	1	66	173	98.3	
		11	76	192	92.7	
		17	72	266	95.3	
		26	80	227	96.1	95.6
4	C. J. Stuart	19	66	201	94.8	94.8
5	A. J. Harding ..	2	57	184	97.9	
		9	79	220	87.3	
		18	69	356	94.4	
		27	74	173	92.5	93.0
6	S. A. Dougherty ..	8	63	168	90.8	
		12	90	217	88.9	
		22	124	459	85.6	88.4
7	C. J. Hales	5	68	253	86.9	
		20	98	354	89.8	88.3
8	V. A. McKenzie ..	7	93	305	90.5	
		15	67	10	82.7	
		21	104	334	89.1	87.4
9	J. A. Morris ..	6	96	202	87.1	
		14	79	177	87.6	
		23	183	555	80.5	8 .1
10	E. N. McGraham ..	24	99	262	75.7	75.7

(5) *Cures by Treatments:*—A total of 7,450 first treatments were administered, and 7,312 second, 1,755 third, 1,688 fourth and 337 fifth treatments.

The number and percentage cured after two, four and five treatments are given in Table 4.

It will be seen that the best results were obtained in districts 1, 2, 3, and 4 where the percentage cured after two treatments was over 85%. In these districts the number of fourth treatments required was comparatively small and very few fifth treatments were necessary.

In districts 20, 21 and 23, however, where the percentage cured after two treatments was less than 65% a large number of fifth treatments were required in order to reduce the residual infection to the desired minimum.

TABLE NO. 4.

No.	2 Treatments.	Percentage.	Cured after 4 Treatments.	Percentage.	5 Treatments.	Percentage.
1	156	89.1	16	94.1	1	100
2	162	86.1	22	91.7	..	..
3	184	88.4	18	78.3	2	100
4	178	85.1	22	78.6	4	100
5	232	81.4	21	84.0	..	..
6	160	72.0	35	64.8	7	43.7
7	253	76.5	46	74.1	6	60.0
8	153	85.9	12	60.0	3	50.0
9	157	63.5	52	63.4	11	47.8
10	218	82.2	31	81.6	5	71.4
11	150	74.9	40	86.9	2	50.0
12	183	77.5	30	75.0	4	50.0
13	156	71.8	42	72.4	9	60.0
14	121	61.1	49	72.0	7	58.3
15	88	68.2	19	63.3	3	60.0
16	171	80.2	30	86.7	3	100
17	221	79.2	35	66.0	10	71.4
18	275	72.9	76	81.7	8	66.6
19	154	73.3	38	76.0	7	70.0
20	251	64.1	82	65.6	21	65.6
21	234	63.5	76	63.3	24	60.0
22	395	78.8	60	84.5	4	44.4
23	415	61.2	116	52.3	24	53.3
24	202	62.1	57	83.8	3	60.0
25	184	73.0	54	81.8	9	81.8
26	177	75.0	42	79.2	8	80.0
27	104	55.6	61	76.2	8	61.5
Totals	5,334	74.2	1,182	75.5	193	61.7

(6) *Incidence of other Intestinal Parasistes:*

Ascaris—The average infection for all the districts was 32.5%. The highest was 68.1% in Distrct No. 18 and the lowest 6.9% in District No. 10.

Trichuris—The average was 33.5%, the highest being in the district No. 23 with 51.5% and the lowest 10.1% in District No. 10.

Strongyloides—Only 59 cases were found.

Oxyuris—Only 4 cases were found.

(7) *Sanitation and Water Supply:*—The Sanitary Inspectors appointed by the Parochial Board have continued the Campaign initiated by the Sanitation Unit about three years ago. The majority of the latrines are of a substantial type, and in most of the districts they are well maintained. With a few exceptions the sanitation in each district has shown marked improvement during the stay of the field officer.

The latrine classification of the 27 districts is given in Table No. 5.

TABLE NO. 5.

District No.	No. of Homes.	First Latrine Inspection.			Last Latrine Inspection.			Old Latrines made Sanitary	Newly constructed Latrines
		D	E	F	D	E	F		
1	72	67	3	2	69	1	2	2	..
2	112	108	3	1	110	1	1	2	..
3	99	73	4	22	85	1	13	3	9
4	91	88	2	1	88	2	1	..	..
5	87	79	3	5	85	1	1	2	4
6	98	93	1	4	95	1	2	..	2
7	154	142	2	10	145	2	7	..	3
8	98	96	1	1	96	1	1	..	..
9	89	85	3	1	87	1	1	2	..
10	240	238	2	..	240	..	..	2	..
11	84	83	..	1	84	..	..	..	1
12	151	148	1	2	148	1	2	..	..
13	114	110	1	3	112	..	2	1	1
14	85	78	..	7	78	..	7	..	..
15	73	59	6	8	59	6	8	..	..
16	178	178	..	..	178	..	..	..	..
17	115	110	2	3	112	1	2	1	1
18	119	115	..	4	119	..	..	4	..
19	95	90	1	4	91	2	2	..	1
20	130	124	..	6	127	..	3	..	3
21	156	131	10	15	134	8	14	2	1
22	267	234	2	31	241	..	26	2	5
23	235	210	8	17	210	9	16	..	..
24	128	118	..	10	120	..	8	..	2
25	124	117	..	7	123	..	1	..	6
26	116	112	..	4	116	..	..	..	4
27	58	57	..	1	57	..	1	..	..
Totals	3,368	3,143	55	170	3,209	38	121	23	43

Water Supply:—The Town of Morant Bay has a pipe borne water supply, and the water is of good quality. At Port Morant a proper water supply is being provided. A reservoir is being constructed from which water will be delivered by means of five standpipes located at suitable places in the town.

The Parochial Board has undertaken the provision of protected water supplies for the smaller communities throughout the parish, and is gradually making progress with the scheme, but in most of the rural districts water is still obtained from rivers and springs which are liable to pollution.

(8) *Other Diseases*—Malaria—This disease occurs throughout the area, but it is not as prevalent as in former years.

Yaws—This disease was found to be widely distributed throughout the area, but its incidence was greatest in the hilly districts e.g., Mt. Labanus, White Hall and Middleton. In some of the districts 10% of those examined were found to be suffering from this disease.

(B) *The Campaign in the Bath Area.*—

(1) *Description of Area.*—The Bath Area comprises the whole of the eastern portion of the parish of St. Thomas and has an area of about ninety square miles, with a population of approximately 15,500.

It is bounded on the west by the Morant Bay Area, and on the east and south by the sea coast. On the north it extends to the border of the parish of Portland. The Plantain Garden River flows in an easterly direction through the area, dividing it into northern and southern sections.

The northern section is mountainous, including as it does a portion of the Blue Mountain range. Perched on the sides of the lower slopes of this range are picturesque settlements, reached by steep bridle paths. These are difficult of access, especially during rainy weather. Higher up there are no settlements, but the land is rented by small settlers, and used for the cultivation of bananas and ground provisions. Still higher are the Crown Lands, densely wooded with fine timber, which are kept as a forest reserve.

The rainfall in these hilly districts is heavy, amounting to nearly 200 inches this year. Springs and streams abound, with many cataracts in their courses. Most of them empty eventually into the Plantain Garden River.

The region south of the Plantain Garden River is a large fertile plain, with undulating hills. In this plain are located large estates engaged in the growing of bananas, cocoanuts and the sugar cane.

The peasants in the northern section for the most part own their little holdings, and have their cultivations on the hilly portions of the adjoining properties. Those living in the southern section usually work as labourers on the large plantations.

Bath, situated at the confluence of the Plantain Garden and Island Rivers, is an historic town, whose charter dates from the middle of the 18th century. It contains the original Botanic Garden of the Island, and is still famed for its mineral springs.

(2) *Treatment Campaign.*—Pioneer work was done in this area by Nurse Stuart from the middle of of March to the end of June. It was decided to treat the northern section first, and the first districts were opened here at the beginning of May.

Owing to the heavy rainfall and the bad state of the roads the carrying out of treatment in these districts presented many difficulties. It has been found more difficult to obtain cures here than in the Morant Bay Area, where the rate of infection was much lower.

Work has been completed in 6 districts, and is making steady progress in 7 others.

The figures for the area to date are given in the following table:—

TABLE NO. 6.

District No.	Name.		Census.	Examined.	Infected.	Treated.	Cured.	Under Treatment.
1	Water Valley	..	789	789	618	540	520	4
2	Johnson Mountain	..	332	327	265	218	166	5
3	Ginger Hall A	..	556	555	544	368	348	4
4	Spanish Wood	..	344	336	185	170	163	3
5	Pilot ..	..	391	386	318	288	343	5
6	Fountain Road	..	669	667	498	412	363	9
7	Beacon Hill	..	566	566	454	378	312	12
8	Quaw Hill	..	605	599	432	351	223	87
9	Spring Bank	..	261	258	216	173	151	1
10	Ginger Hall B.	..	385	385	292	229	214	8
11	Ducken Field	..	531	531	334	289	279	4
12	Sunning Hill	..	397	397	304	277	251	15
13	Mount Stewart	..	378	376	328	293	223	37
Totals	..	..	6,204	6,172	4,698	3,986	3,456	194

(3) *Rate and Degree of Infection:*—The rate of infection was found to be much higher in this area than in the Morant Bay Area. It varies from 84.5 in District No. 13, Mount Stewart, to 55% in District No. 4 Spanish Wood, the average being 76%.

A recent modification of the Stoll egg-count method has been used to determine the average number of worms per infected person. The highest average was found in District No. 13, Mount Stewart, where egg-counts were done on 25 patients, and the figure obtained was 244.

A man in this district was found to harbour, 2,590 worms as determined by the Stoll method. He was a typical case of advanced ankylostomiasis, and had not been able to do any work for more than a year. Within two weeks after taking the fifth treatment his physical appearance showed marked improvement, and he had resumed work as a labourer on a banana plantation.

(4) *Incidence of other Intestinal Parasites.*—Ascaris—The rate of infection varies from 58.8% in District No. 1, Water Valley, to 9.2% in District No. 4, Spanish Wood, the average being 38.4%.

Trichuris—The average infection was 60.7%, the highest being 79.9 in District No. 13, Mount Stewart, and the lowest 37.5% in District No. 4, Spanish Wood.

Strongyloides—Only 15 cases were found.

Oxyuris—Only 1 case was found.

In order to determine the effect on Ascaris of the anthelmintics (Oil of Chenopodium and Thymol) used in the treatment of hookworm disease, a study was made of a 1,000 cases who were infected with both parasites. These were all treated until they were free of Hookworms, but it was found that 263 or 26.3% still remained infected with Ascaris. Of these 186 received two treatments, which were sufficient to remove all the Hookworms, but did not rid them of the Ascaris infection. 66 received four treatments, and remained positive to Ascaris though cured of the hookworm infection. The remaining eleven required five treatments to expel all the hookworms, but were still uncured of the Ascaris infection.

The figures indicated that a large number of those infected with both parasites still remained infected with Ascaris after being cured of the hookworm infection.

The details are given in Table No. 7.

TABLE NO. 7.

Results after:

	2 Treatments.			4 Treatments.				5 Treatments.			
District No.	Infected with H. & A.	Cured of H.&A.	Posttive to A.	Cured of H Positive to A	Treated.	Cured of H.&A.	Postitive to A.	Cured of H Positive to A	Treated	Cured of H & A	Positive to A.
1	311	206	105	67	38	24	14	11	3	2	1
2	104	62	42	18	24	13	11	9	2	1	1
3	120	81	39	20	19	9	10	8	2	1	1
4	17	12	5	1	4	3	1	1	..	..	..
5	67	46	21	9	12	5	7	6	1	..	1
6	114	71	43	25	18	12	6	5	1	..	..
7	176	107	69	26	43	23	20	15	5	2	3
8	62	32	30	11	19	7	12	8	4	..	4
9	29	14	15	9	6	2	4	3	1	1	..
Totals	1,000	631	369	186 or 18.6%	183	98	85	66 of 6.6%	19	8	11 or 1.1%

N.B.—H—Hookworms. A—Ascaris.

(5) *Sanitation:*—The Sanitation unit conducted its campaign in this area before dealing with the Morant Bay Area. While most of the latrines erected at that time have been well maintained, some have fallen into disrepair. This is especially noticeable in the district of Quaw Hill where heavy rains have done some damage to certain of the latrines. The Sanitary Inspectors appointed by the Parochial Board and the Nurses working the districts are doing much to improve these conditions.

The latrine classification of the thirteen districts is given in the following table:—

TABLE NO. 8.

District No.	Name.	No. of Homes.	First Latrine Inspection.			Last Latrine Inspection.		
			D.	E.	F.	D.	E.	F.
1	Water Valley	143	138	3	2	139	2	2
2	Johnson Mountain	77	52	10	15	58	12	7
3	Ginger Hall A	146	146	..	..	146	..	..
4	Spanish Wood	79	74	..	5	79	..	..
5	Pilot	86	83	1	2	84	..	2
6	Fountain Road	135	120	9	6	129	2	4
7	Beacon Hill	136	126	9	1	..	..	..
8	Quaw Hill	147	111	19	17	..	..	..
9	Spring Bank	91	72	17	2	81	9	1
10	Ginger Hall B	94	90	4	..	91	3	..
11	Ducken Field	101	99	1	1	100	..	1
12	Sunning Hill	72	67	..	5	..	..	..
13	Mount Stewart	89	67	4	18	..	..	..
Totals		1,396	1,245	77	74	907	28	17

(6) *Educational:*—The usual methods have been employed. House-to-house talks, chart lectures, lantern lectures, moving picture films and microscopic demonstrations have all been used to stimulate interest of the people in health matters.

Health Week was duly observed in the area, and proved quite popular both with the school children and the grown-ups. The Health Play was staged at several of the schools to large and appreciative audiences, while lectures on health topics were given by the Medical Director and other members of the Staff.

A total of 34 lectures have been given in the area to approximately 6,725 persons.

SECTION III.

MORANT BAY AREA.

STATISTICS OF DISTRICTS 9—27.

1. Census		11,102
a. No. of people not located	4	
b. No. removing before examination	60	
c. No. dying before examination	1	
d. No. refusing to be examined	7	
2. Corrected census		11,030 or 99.3%
3. Number of people examined		11,030 or 100%
4. Number of people found infected		6,519 or 59.1%
a. No. of people not located for treatment	10	
b. No. of people removing before receiving treatment	206	
c. No. dying before receiving treatment	9	
d. No. refusing to take treatment	14	
c. No. not treated for medical reasons	657	
5. Number available for treatment		5,633 or 86.4%
6. Number of people treated		5,622 or 99.8%
a. No. not located for further treatment	4	
b. No. removing before cured	115	
c. No. dying before cured	1	
d. No. refusing to take further treatment	9	
e. No. discontinuing for medical reasons	68	
f. No. discontinuing after receiving five treatments	163	
7. Number possible to cure		5,262 or 93.6%
8. Number of people cured		5,018 or 95.4%

Statistics of 6 Districts of the Bath Area in which work was completed. (Districts 1—5 and 9).

1. Census		2,673
a. No. removing before examination	20	
b. No. refusing to be examined	2	
2. Corrected census		2,651 or 99%
3. Number of people examined		2,651 or 100%
4. Number of people found infected		2,056 or 77.5%
a. No. of people not located for treatment	5	
b. No. removing before receiving treatment	49	
c. No. dying before receiving treatment	1	
d. No. refusing to take treatment	4	
e. No. not treated for medical reasons	240	
5. Number available for treatment		1,757 or 85.4%
6. Number of people treated		1,757 or 100%
a. No. not located for further treatment	3	
b. No. removing before cured	28	
c. No. dying before cured	1	
d. No. refusing to take further treatment	3	
e. No. discontinuing for medical reasons	18	
f. No. discontinuing after five treatments	56	
g. No. discontinuing after four treatments	35	
7. Number possible to cure		1,613 or 91.7%
8. Number of people cured		1,591 or 98.6%

II.—REPORT OF THE JAMAICA MALARIA COMMISSION.

Malaria control in Jamaica as a branch of the activities of the Central Board of Health began during 1929. Previous to that time a survey had been made to determine exactly where the diseases exists and and where malaria-carrying mosquitoes breed. From the findings of the survey, it appears that malaria is only rarely encountered at elevations above 500 feet and that, except in irrigated areas, the disease shows a decided increase during years of high rainfall. The south side of the island showed foci of high malaria incidence in the parishes of St. Thomas, St. Catherine, Clarendon, and St. Ellzabeth, and on the north side in St. James. A broad zone of lower malaria prevalence was found in the parishes of Westmoreland and Hanover at the western end of the island and similar small circumscribed areas of low incidence were located on the north coast, mainly in Portland parish.

Breeding places of mosquitoes were located and carefully mapped during the survey. A study of the anophelines encountered disclosed the presence of all four species known to occur in Jamaica, namely: *A. albimanus, A. grabhami, A. crucians, and A. vestitipennis.* No new species were discovered. Observations point to *A. albimanus* as the most important malaria vector.

In conducting control measures the Malaria Commission has during 1930 and 1931 directed its attention mainly to work in populous areas where the disease existed in endemic form. Nine such places were located by the survey, these being Golden Grove in St. Thomas, Caymanas in St. Catherine, Vere in Clarendon, Black River in St. Elizabeth, Sav.-la-Mar and Little London in Westmoreland, Montego Bay in St. James, and Oracabessa and Annotto Bay in St. Mary. To these must be added Falmouth in Trelawny where the disease appeared in epidemic proportions during the summer of 1931. Of these ten areas, the Commission conducted control measures in eight during the year.

The work of the Malaria Commission was greatly increased during 1931 by abnormally and unusually heavy rains throughout the year in most parts of the colony. The average mean rainfall of the island, based on observations over 50 years, is 76.46 inches during 1931 it was 91 inches. The control areas lie, for the most part, in areas having rainfall much above the average for the island as a whole. The occurrence of malaria in epidemic form in Falmouth and in the Red Hills above Kingston also added to the work of the Commission; and increases in the incidence of the disease also occurred in the St. Thomas-ye-Vale district of St. Catherine, in the hill districts of St. James and Hanover, in Sav.-la-Mar and adjoining districts of Westmoreland, and to a lesser extent in places in St. Thomas and Portland parishes. All of these outbreaks were investigated by the Commission, in addition to its routine work in the seven control areas. Although the incidence of malaria was greatly increased throughout the island, in spite of the heavy rains there was no marked increase in the disease in any of the seven areas where control measures were conducted. This is remarkably gratifying since these places were selected because they were formerly the worst sites of endemic malaria. In all seven areas, control was mainly through the treatment of standing water with Paris Green dust—i.e., 1 part of Paris Green mixed with 99 parts of road dust or powdered lime or 1 part Paris Green with 128 parts of sand. In two areas the procedure of destroying holes in limestone rocks, so that these would not hold collections of rain water, was continued. No new districts were treated with sub-soil drainage, though drainage through open ditches was extended in a number of places. Due to the heavy rainfall there was a small increase in the number of mosquitoes caught in all the areas, and the same is true of larvae catches, but this was a thing to be expected.

Evidence of the benefits of control measures in the seven selected areas may be stated as follows: 1. There was a great decrease in the number of cases of malaria; though on account of the heavy rains the disease was very prevalent in other districts. 2. There have been marked decreases in the spleen and parasite rates (by blood examinations). 3. Fewer cases of malaria were treated at Government hospitals and at dispensaries. 4. The attendance at schools has greatly increased.

During 1931, the staff of the Malaria Commission consisted of one medical officer, Dr. F. W. Aris, two technicians, Miss G. Edwards and Miss E. Wilson, eight field officers, and a varying number of labourers the average number being three in each area. The Commission was directed by the Director for Jamaica of the Rockefeller Foundation. The work of the year by areas is summarized in the following account;

Golden Grove:—This area has been 18 months under control. The rainfall for the year was 117.10 inches, the heaviest in any area, 95 days of rain being recorded. There were 1,717 larvae sent up for examination, of which 1,117 were small and 600 large. *A. albimanus*—1,523, *A. vestitipennis*—109, and *A. grabhami*—185. 46 collections of adult mosquitoes yielded 145 mosquitoes: *A. albimanus*— 69, *A vestitipennis*—16, and *A. grabhami*—60. 197 blood smears were sent up during the year of which 54 were positive: *P. vivax*—23, *P. falciparum*—29, and *P. malariae*—2.

A blood and spleen survey of 162 children was made on November 23, 1931. The parasite index was 8% and the spleen rate 9.25%, while the parasite index in March of 1928 was 31.5%. In June 1930, 175 children showed a parasite rate of 11.4%, while in June, 1931 it was 2.8% when 106 children were examined. 92 children examined in June, 1930, with a parasite rate of 9.9% showed a reduction to 3.6% in June, 1931.

The Hospital admissions from the area were much less than during former years. The heavy rainfall often prevented work and coming immediately after dusting the Paris Green destroyed films before they were effective. Sand and damp earth were used as diluent for Paris Green, the latter being dug from the river's bank, sifted and stored. In the latter part of the year the Jamaica Sugar Estates Ltd. gave useful help by ditching and assisting with transportation of dust. The shifting nature of casual labour continued and many resident in the control area worked beyond its limits, returning home late in the evenings.

Caymanas:—This area has been longest under control, viz. 2½ years. There were 79 rainy days and the annual rainfall was 53.86." 3,294 larvae were received for examination, of which 2,960 were small, and 334 large: 3,198 were larvae of *A. albimanus;* 22 were larvae of *A. vestitipennis;* 72 were larvae of *A. grabhami.* 41 blood smears were examined during the year, of which 28 were negative and 13 positive as follows: *P. vivax*—6; *P. falciparum*—4; and *P. malariae*—3. 93 night catches of adult mosquitoes were made and resulted in 739 mosquitoes being caught, an average of 7 per catching station. These were classified as *A. albimanus*—696, *A. vestitipennis*—8, *A. grabhami*—11, and *A. crucian*—24.

A blood and spleen survey was taken on November 14th, 1931, 105 labourers and overseers were examined and showed a blood positive rate of 13.46% and spleen rate of 7.69%. The spleen rate was entirely made up of the 27 East Indians examined and no one with an enlarged spleen showed a positive blood. The blood rate in the area last year was 13.54% and that of the Island Survey 58.7%. A high incidence of malaria obtained around Caymanas, being epidemic on its eastern boundary. An examination of 41 children (16.11.31) outside the zone of control, viz., from Turnbull Pen, Glade, Caymanas Bay, and Ferry, gave a blood index of 60.9% and a spleen rate of 70.7%.

In appreciation of last year's work the Manager of the Caymanas Estates offered to pay 2-3rds of the labour expense and expressed the wish that the remainder of the property across the main road as far as the Rio Cobre River and down to the Ferry River should be put under control. This was done and the examination reported as from "The Caymanas Outside Zone now under control." Control in this larger area began in May of this year. A total of 1,163 larvae were collected (1,006 small and 157 large): they were *A. albimanus*—1,134, *A. vestitipennis*—12, and *A. grabhami*—17. 26 catches of adult mosquitoes were made, 362 mosquitoes being taken;—*A. albimanus*—352, *A. vestitipennis*—3, and *A. grabhami*—7. A rapid change in population continued as it did during 1930. Of 244 examined in May, 1929, only 55 remained, 144 left in the first half year, 39 in 1930 and 6 in 1931.

Vere:—A treatment campaign was undertaken in this area early in 1930 after a blood survey which showed a high parasite index. It appeared to be successful up to the end of October, 1930, with the appearance of many rain water pools supporting heavy anopheline breeding. The campaign was changed in February, 1931 to an anti-larval one with treatment of active fever cases at the United Fruit Company's dispensary.

Anopheline survey in January showed *A. albimanus* breeding in all permanent water and some temporary ones, which were rapidly drying. 196 blood smears were taken from labourers complaining of fever, and 64 showed parasites in the peripheral blood: *P. vivax*—21, *P. falciparum*—36, *P. malariae*—6, and Mixed—1. The staff of two Sanitary Inspectors and 4 labourers control an area of 36 square miles. The United Fruit Company supplies two labourers; and two animals to assist in transportation of dust. The weekly fever incidence from field and dispensary slowly diminished up to June when three of the smears sent were positive: it then rapidly increased for the rest of the year.

63.09 inches of rain fell for the year distributed over 114 days. Rainwater pools on depression in the properties on the roadway increased in number and supported anopheline culicine breeding. The staff was unable to control efficiently the increased water surface thus formed and available funds did not permit an increase of staff.

High fever incidence was reported from previously dry areas, nearby especially at Portland and Rocky Point, and many of the children examined later at Alley School showed high infestation. Of 2,252 larvae sent up for the year, 2,207 were of *A. albimanus* variety and 45 of *A. grabhami.* Of 90 collections of anophelines adults 394 were *A. albimanus,* —13, *A. vestitipennis,* and 27 *A. grabhami.* 831 blood smears were sent up: 551 were negative. The positives were classified as *P. vivax*—86; *P. falciparum*—163, *P. malariae*—31, and Mixed—4. An examination for parasite and spleen rate was made at two schools within the area and a high parasite index and spleen rate found among those living in the area as well as those without. At the Alley School 87 were examined: Parasite index 35.6% and spleen rate 26.4%. At the Watsonton School 61 were examined: Parasite index 42.6% and spleen rate 11.4%.

Black River:—A careful study was made of this area in December, 1930. Control measures were started in May, 1931. Owing to the extensive swamps to the east and north of the town the work was regarded as an experiment to determine its effect on the malaria situation. 51 children of the Black River School when examined in January, 1928, at the beginning of the Island Survey, gave a parasite index of of 13.1% and a spleen rate of 41.3%. An examination of 74 children at the above named school in May, 1931, showed a parasite index of 4.05% and a spleen rate of 17.5%. An examination of 93 children at Black River School on December, 1931 gave a parasite rate of 1.08% and a spleen rate of 5.3%. 54 children encountered at both examinations showed the following spleen shift.

		Neg.	P. D. I*	1.	2.	3.	4.
May 1931	..	43	8	2	0	0	1
December 19/31	..	50	3	0	1	0	0

At Pondside,—4 miles north-east of Black River, which at the Island Survey showed a parasite index of 77.8% and a spleen rate 38.5%, 39 children in May, 1931 showed rates of 7.6% and 12.8% respectively. Examination at Pondside School December, 1931 showed Parasite index 10% and spleen rate 20%.

At Middle Quarters,—4 miles north west of Black River, the rates were 1.8% and 10.9% of 109 children examined. This school was negative for blood and spleen during the Island Survey.

The number of days of rain in Black River and the total precipitation for the last 4 years are as follows:—

	No. of days or rain.	Rainfall in inches.
1928	85	37.29
1929	133	37.08
1930	120	41.33
1931	119	49.94

2,824 larvae were sent up during the 7 months of control: *A. albimanus*—2,726, *A. vestitipennis*—11, *A. grabhami*—75, and *A. cruian*—12. 62 collections of adult mosquitoes yielded 2,442: *A. albimanus* 708, *A. vestitipennis* 32, *A. grabhami* 95, and *A. crucian* 1,607.

Collections of adult mosquitoes showed an interesting variation as control progressed. *A. albimanus* showed an average of 17 per catching station in May and 31 in June and rapidly diminished until December 7: collections of 83 mosquitoes gave *A. albimanus* 2, *A. grabhami* 1, and *A. crucian* 80. Adults of *A. crucian* were found in large numbers every month though few larvae were found, confirming the opinion that they breed in the swamps outside the area *A. albimanus* appeared, on the other hand, to be wholly produced in the area and owing to the efficiency of Paris Green and the accuracy of its application a few adults emerged.

Montego Bay.—Control began in May 1930. Rock holes, breeding anopheline and culicine larvae were first filled in, the dusting with Paris Green began in July. The protected population is about, 9,000 persons. Control operations were well timed as owing to the abundant rainfall this year the entire north-eastern part of the island experienced a high malarial incidence. The parishes of Trelawny, St. James, Hanover and Westmoreland were affected. Montego Bay alone escaped. The rainfall here was 73.44 inches, distributed over 166 days.

There were 1,036 anopheline larvae sent up for examination during the year, 895 were small and 141 large: *A. albimanus* 824, *A. vestitipennis* 5, and *A. grabhami* 207. 46 collections of anopheline mosquitoes from the night catching stations resulted in 145 adults being taken. *A. albimanus* 69. *A. vestitipennss* 16 and *A. grabhami* 60. Of 46 blood smears sent up during the year only 6 were positive: *P. vivax* 5, and *P. falciparum* 1.

A blood and spleen examination was made on November 30th and December 1st, 1931. 400 children were examined with a parasite index of 3% and spleen rate of 1.05%. The parasite index was 12.43 and the spleen rate 5.9% at the time of the Island Survey. As a check on these results the children at the nearest school in the outside zone was examined. This was the Salt Spring School at an elevation of 750 feet where there were negative blood smears and spleens during the Island Survey. The examination was done on the 1st of December, 1931 and the result was a parasite index of 12.22% and a spleen rate 7.44% Of the 10 cases, splenomegaly encountered, 2 were recently imported from Catadupa and 5 from Whitehouse, a fishing village 2½ miles east of Montego Bay. The owner of the Barnett Estate assisted by ditching two swampy areas in his property and allowing marl to be dug as a diluent to Paris Green.

Oracabessa:—Control work started in the Oracabessa Area in 1930 and was carried on all during the year 1931. It consists in dusting the Jack's River weekly with Paris Green mixture to control breeding of larvae. The river is 262 chains long (or just over 3¼ miles) from its mouth to beyond the southerly limits of the village of Jack's River. Besides this, there are small streams that run into it which also have to be dusted—about another 60 chains. The dust used is crushed lime-stone obtained from a stone-crushing plant about half-a-mile from our depot at Eden Park. In December we had to crush our own lime-stone as the plant has been abandoned The usual routine is that the dust is seived and mixed on Mondays, and the mixture taken to five iron containers placed at suitable points on the river bank. The mixture used is one part of Paris Green to 100 parts of seived dust. On Tuesday morning the actual dusting starts, commencing at the river mouth and going up-stream. This takes till Friday. The average area dusted per month was 695,263 square yards.

The permanent work which was done early in 1930 in sledging the honey-comb rocks in the Liberty Castle section of the area, was inspected regularly to see that no holes were overlooked. A few were found scattered over the district and, when opportunity occurred, the two labourers were sent back to sledge them. In this way 27½ working days were spent at a cost of £4 10s. This permanent work has certainly been of great benefit to the people, few of whom had malaria during the year.

Very little breeding has been found outside of the Jack's River Section. Here dippings were made every week and 935 larvae collected, there being 139 caught in January and 333 in December—the most prolific months. Over 90 of these larvae were of the first and second stages. The larvae caught were *A. grabhami* and *A. albimanus*, the former prepondering greatly.

44 night catches were made during the year at the different sections of the area. Most of these were negative and only six Anopheles were caught on four nights.

In March 115 children at Oracabessa School and 87 at Jack's River School went under the periodic examination for evidence of malaria fever. The results were compared with those obtained in February 1930 for the same batch of children.

(a) Oracabessa School of the children examined, 15 or 13 had enlarged spleens; while in 1930 there were 28 or 4.3 The microscopic examinations of blood smears taken from these children show that 2 or 1.7% has parasites. In 1930, the figures were 10 and 8.7%.

(b) Jack's River School: This year 29 or 33.3% had enlarged spleens; whereas in 1930 it was 35 or 40.4 . In 31, 17 or 19.5% had positive blood; in 1930, 16 or 18.4%.

Annotto B.—This area has been under control for 2 years and its response to control measures still exceeds our expectations. The rainfall for the year was 115.07 inches distributed over 105 days; the town was often inundated by 3 rivers which pass through and enter the sea. It required unceasing vigilance to cope with the extensive breeding area. The boat and outboard motor were in constant use. A mixture of sand and crushed lime-stone was the only available diluent for the Paris Green.

6,095 anopheline larvae were sent up for examination, 4,564 small and 1,531 large, during the year: *A. albimanus*, 4,033, *A. vestitipennis* 561, and *A. grabhami*, 1,501. There were 95 collections of adult mosquitoes made from the various night catching stations, totalling 580: *A. albimanus*, 307, *A. vestitipennis*, 242, and *A. grabhami*, 31. The technicians experienced great difficulty in differentiating small larvae of *A. vestitipennis* and *A. grabhami* which explains the disparity in the relative numbers of larvae in this area.

239 blood smears were sent up during the year, of which 52 were positive: *P. vivax* 23, *P. falciparum* 19, *P. malariae* 9, and Mixed 1. A blood and spleen survey was made on November 19th, 1931, when 194 children attending the Annotto Bay School were examined. The parasite index was 5.1 ; the spleen rate was 8.76%.

The results of the various examinations of the children of this school before and during control are instructive:

Parasite Indices.

Dates.	No. examined.	No. positive.	Per cent. positive.
October, 1928 (Island Survey)	23	5	21.7
February 1930 (Survey before control)	159	59	37
March 1931 (1 year after control)	242	7	2.8
November 1931 (2 years after control)	194	10	5.1

Spleen Rates.

Dates.	No. examined.	No. positive.	Per cent. positive.
1908-1909	106	65	68.9
October, 1929 (Island Survey) . .	30	14	46.6
February, 1930 (Survey before control)	159	75	40.6
March, 1931 (1 year under control	242	38	15.7
November 1931 (2 years under control)	194	17	8.76

Spleen Sizes 1930-1931 (*Boyd's Classification*).

Dates.	P.D.I.*	1	2.	3.	4.	Total.
February, 1930, (Survey before control)	42	13	11	4	5	75
March, 1931, (1 year after control)	25	8	4	0	1	38
November, 1931	9	4	1	2	1	17

Spleen Sizes November 1931—*Inside and Outside Zones compared.*

	No. Examined.	Negative.	P.D.I.*	1.	2.	3.	4.	Total Spleens.
Inside Zone . .	171	158	8	4	1	. .	. .	13
Outside Zone . .	23	19	1	. .	. .	2	1	4

Spleen Shift in 41 *children during first year of Control.*

Date.	Negative.	P.D.I.*	1.	2.	3.	4.	Total.
February, 1930, (Survey before control)	0	25	9	4	2	1	[illegible]
March, 1931, (after 1 year of control)	36	3	1	. .	. .	1	1

As a check on the results at Annotto Bay two coastal schools, Epsom and Windsor Castle, four and six miles respectively from Annotto Bay, were examined in March, 1931.

	Epsom.		Windsor Castle.	
Date.	Parasite index.	Spleen rate.	Parasite index.	Spleen rate.
October, 1928	15.7	52.1	45.4	57.1
March, 1931	14	64.1	25	51.7

* P.D.I—Palpable on deep inspiration.

F. W. Aris,

Medical Officer, Malaria Commission.

III.—TUBERCULOSIS STUDY CLINIC AND X-RAY LABORATORY.

Report of the Kingston Tuberculosis Dispensary.

The year 1931 has been notable chiefly for the following two facts, (1) the equipping of the X-Ray Department which has been working since its opening in conjunction with this clinic, and (2) the great increase in the number of patients who attended at the dispensary during the year. This latter is undoubtedly due to an improved knowledge of tuberculosis as far as the working classes are concerned and also to the greater interest being taken in the subject by local practitioners who now have at their disposal as good a means of making accurate diagnoses of their questionable chest cases as at present can be provided. The facilities for X-Ray work and the propaganda work of the Survey have also greatly increased the interest of the general public in tuberculosis.

During 1931, 2,275 new patients were examined at the dispensary, this number being more than the total number of patients seen from the opening of the dispensary in 1928 until the end of 1930. The attendance of old patients reached a total of 4,456, nearly double that of the previous year. Of the new patients examined, 647 were found to be cases of tuberculosis. Since the beginning of work at the dispensary, 941 families have been placed upon Social Service, thus entitling them to all the benefits to be derived therefrom. At the end of December, 1931, 170 of these families had been discontinued, as either all surviving members of the family (a) were known to have left Kingston, or (b) had disappeared for over two years leaving no address. The nurses remained in touch with over 700 families, and during the year paid a total of 6,035 home visits. Since the opening of the dispensary 1,270 cases of tuberculosis have been diagnosed, and of these 643 had died at the end of December, 1931. During the year 3,124 tuberculin tests were made, 1,573 of these being on persons who had attended because of contact with the disease. A total of 3,290 sputum examinations were made. 2,082 dispensary cases were X-rayed, an analysis of the lesions found appearing on the report of the X-Ray Laboratory.

The great increase in the work at the dispensary has necessitated an increase in the staff. In April, 1931, an additional nurse provided by the Anti Tuberculosis League took up her duties; in July, 1931 Miss S. Wood was appointed to assist Miss deMercado, who until then had been doing both the clerical and microscopic work of the dispensary; in November, 1931, Dr. Richard A. S. Cory was appointed Assistant Medical Officer.

As in the past, the work of the nurses has proved of the greatest possible value and they are welcomed as friends by their patients, and it is noteworthy that fewer patients than in former years appear now to resent being visited and to hide from the visiting nurses.

Undoubtedly the X-Ray has been of great help in overcoming the reluctance of contact cases to visit the dispensary. With very few exceptions they are anxious to be X-rayed and return willingly for re X-Ray when necessary. Unfortunately, there are still some patients who never return to the dispensary after the diagnosis of their condition has been made and who disappear, leaving no address in order to avoid detection, but these are few in number.

Mention must be made of the ever increasing number of contact cases who have developed tuberculosis while under observation at the dispensary. In some instances we are fortunate in possessing negative X-Ray and clinical findings previous to the onset of the disease. The progress of all such cases is being very carefully watched.

The buildings of the dispensary, which so far have proved entirely satisfactory both in size and design, have unfortunately, become rather too small to make it possible to cope with the very much larger numbers of patients with the same facility that was possible a year ago. At the present moment the most pressing needs are for (1) a small separate room in which the dispensing, which has previously been done in the Stenographer's office, could be carried on, and (2) an additional shelter for waiting patients, as part of the one already in existence has had to be partitioned off to serve as consulting room for the Assistant Medical Officer.

In this context we wish to express our appreciation for the help and courtesy received from Dr. Wells and the staff of the X-Ray Laboratory.

Ethel Joyce Isaacs,
Medical Officer.

Report of Tuberculosis Field Survey, Kingston, Jamaica.

The following report indicates the progress made during 1931 in the Tuberculosis Field Survey in Kingston, Jamaica. Survey activities were inaugurated late in July in an area in Smith Village including six city blocks which contain a population numbering between 1,650 and 1,700. Actual examinations of this population began on August 10th and have been continued to the end of the year. During the year examinations have been made of 1,286 individuals living in Smith Village Survey Area out of the censused population of 1,634. The latter figure is not complete owing to the refusal on the part of several of the inhabitants of several yards to co-operate or furnish information regarding themselves, so that it is likely that the total population of the area will reach approximately 1,700.

For the sake of simplicity and clearness this Annual Report is being recorded and forwarded on forms furnished for monthly Progress Reports, and no attempt is being made to calculate percentages and rates from the date at this time owing to the fact that the survey will be continued in Smith Village for at least some weeks, and upon its completion more accurate calculations can be made. For the same reason, namely, the incompleteness of the work, we are inclined to withhold extended discussion and comments.

There is one feature relating to this report of the work which will readily be apparent, which may call for explanation and comment. It will be observed that under the heading 1. (b) "No. of households with one or more members reacting to tuberculin, no X-Ray examination" there is reported "none" and the same report is made under 4. (a) and (b). The reporting of "none" for these items is due to the fact that in the Smith Village area every individual has been X-Rayed as well as tested with tuberculin. This procedure, we fully realise, is not strictly in accord with the instructions forwarded from the New York

Office to the effect that all individuals giving a positive reaction to tuberculin should be X-Rayed. The variation in procedure in this respect was in the opinion of those conducting the work in the field, justified by circumstances which may or may not be restricted to the survey area in Smith Village. Great difficulty has been encountered in Smith Village in obtaining co-operation from the inhabitants and consent for examination, and it was revealed at the very start of the work that our attempt to test first with tuberculin before X-Ray examination would result in reaching a very small percentage of the population. Opposition was particularly voiced against the tuberculin test and rumours were spread throughout the area by ill-informed or malicious individuals that the tuberculin test was an instrument we were employing as members of the white race to destroy the coloured race. Particularly was it rumoured that the tuberculin test when applied to women would prevent their bearing off spring. No amount of explanation succeeded in overcoming these reports, the effect of which even towards the end of the work persists, and have reduced the total number of examinations. In order to overcome the obstacles and thus achieve results of greater value it was thought that by bringing the individuals to the laboratory where the procedure would be more thoroughly explained to them and demonstrated, completing the X-Ray examination and applying the tuberculin test at one visit would help matters. This was inaugurated and immediately met with more favourable response from the population, the feature which appealed to the individual being the X-Ray examination and most of them being willing to submit to the tuberculin test if by so doing they would receive an X-Ray examination. In view of the fact that only 13% of the number examined gave negative tuberculin reactions, we feel that the procedure followed, particularly with respect to Smith Village population, should be approved.

The following data is a similar report to the above, but dealing with the findings in the early stages of the Tuberculosis Survey started in Hannah Town, a section of Kingston, about the 1st of November. The work in Hannah Town was stopped about the 1st of December, on receipt of instructions to this effect from New York Office. It is hoped to resume the work in Hannah Town at an early date. Similar comments to those made above with respect to Smith Village apply equally to Hannah Town, although we are inclined to believe that in certain cases in Hannah Town, it may be possible to eliminate the negative reactions to tuberculin from X-Ray examination.

Little need be said regarding the difficulties and progress which have been made in the Tuberculosis Field Survey. Naturally difficulties have been encountered and are yet to be met. This is to be expected and is not without its desirable features, since the experience which the field staff are deriving from this work will be greater and more valuable because of the necessity of facing difficulties and problems and bringing about their solution. We are well satisfied with the progress which has been made, and with the co-operation shown by all those identified with the work.

It must be understood by those reading this report that the survey, as it now stands, is incomplete both with respect to the total population and in a number of instances with reference to the individual. For instance, in Smith Village, there is still listed 25 diagnoses incomplete, while in Hannah Town, the number is 5. Effort is being made to continue to study these individuals and arrive at a final diagnosis as soon as possible. Also in the two areas there is a combined total of 12 individuals with a diagnosis of Pulmonary Tuberculosis Sputum Negative; further examination will possibly alter this numbef.

The survey method as applied to tuberculosis as conducted in Jamaica is more or less new and on trial as a practical procedure suitable for adoption on a wide scale by governmental public health agencies for the study, control, and prevention of tuberculosis. If this be true, among the responsibilities falling upon those engaged in the work, is the formulation of methods and procedures which may contribute towards the establishment of the survey method as a practical procedure. In dealing with this point, we are not concerned with those indefinite obstacles arising from pecularities inherent in the population as ignorance prejudice, and indifference, since the degrees to which these are overcome will depend largely upon the selection of the individuals responsible for the work in the field. Nor are we referring to the matter or trained personnel who are responsible for the administrative and scientific aspects of the work. Whether or not the survey method is a practical procedure for a public health agency depends largely upon the per capita cost. If it is necessary to include a complete X-Ray examination for every individual in the survey, the cost will probably be too great. We would therefore like to offer the suggestion for serious consideration that there be added to our equipment a fluoroscopic apparatus which shall be used routinely and extensively in the survey, for the examination of every individual thus reducing the cost of films, and that X-Ray examination be reserved as far as the survey is concerned, to those individuals presenting suspicious findings on fluroscopic examination or clinical History.

Before closing this report, we desire to mention more definitely than has been intimated before, the general spirit of co-operation displayed by all those who have been identified with the work. The survey has been undertaken chiefly through the services of the regular staff of the X-Ray Laboratory supplymented by a Sanitary Inspector for Smith Village and a second Sanitary Inspector for the work begun in Hannah Town early in November, and in addition one visiting nurse. Much of the field work naturally has devolved upon the Sanitary Inspectors and the nurse. Both Dr. Smith and myself have spent a great deal of time in the areas under survey. It is only fair to point out that much of the extra routine work incident to the survey has been done by the regular Laboratory Staff, particularly Miss Reid, who is responsible for the developing of X-Ray films, Dr. Parkin who has assisted in the taking of the films, Miss Bitter and Mrs. Maxwell who have been responsible for the records. Dr. Parkin and Miss Reid particularly, have cheerfully devoted time outside of regular hours to the work, as for instance, one night a week and Sunday mornings. The attitude displayed by members of the staff has contributed much to the success of the work and affords satisfactory promise with respect to the future.

Clifford W. Wells,
Medical Officer.

TUBERCULOSIS FIELD SURVEY, JAMAICA CENTRAL BOARD OF HEALTH.

Kingston.................Parish..............Kingston.............Area...........Smith Village.

Year 1931 Director of the Survey Dr. C. W. Wells.

1A. No. of households censused during the year 563
1. No. of households surveyed during year 491
(a) No. with all members tested negative to tuberculin 4
(b) No. with one or more members reacting to tbn, no. X-ray exam. .. .. None
(c) No. with one or more members reacting to tbn, no. X-ray lesions 383
(d) No. with one or more members with latent tuberculous lesions 77
(e) No. with one or more members with pulmonary tbc. sputum neg. 14
(f) No. with one or more members with pulmonary tbc. sputum pos. 4
(g) No. in which no members were examined .. 72
II. (a) Total persons examined during the year .. 1,286—78.6%
(b) Persons listed in the census but not examined .. 348—21.4%
Total .. 1,634—100.0%

(Tabulate all persons listed in the census as follows).

Age	0—4		5—9		10—14		15—19		20—29		30—39		40—59		50—59		60		Total.
Sex	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
III. Persons with neither tbn. test nor X-ray ex. ..	20	14	11	6	8	6	2	13	44	44	53	24	20	24	17	18	9	15	348
IV. Persons with tbn test only—																			
(a) Negative ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(b) Positive ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
V. Persons with both tbc test and X-ray exam. ..	66	71	81	77	44	70	33	90	129	217	64	129	49	71	18	37	11	29	1,286
* (a) Tbn test negative ..	35	30	28	23	4	9	5	5	7	10	1	5	0	3	0	1	0	1	167
* (b) Tbn test positive	31	41	53	54	40	61	28	85	122	207	63	124	49	68	18	36	11	28	1,119
(c) Pulm. nod. (calcified	1	1	..	..	4	..	..	2	3	5	5	7	2	5	..	1	..	2	38
(d) Pulm. infil. (child. type) ..	..	1	..	..	..	..	..	..	..	3	..	1	..	1	..	..	..	..	6
(e) Tbc. tr. br. lym.nodes																			
(1) Calcified ..	..	..	3	1	4	5	1	5	2	6	3	3	..	..	2	1	..	1	37
(2) Massive caseous	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(f) Latent apical tbc. ..	..	..	..	..	..	..	1	..	0	2	3	3	4	5	5	3	1	1	28
(g) Pulm. tbc. sput. neg.	..	..	..	..	..	..	..	..	1	2	..	1	..	1	2	..	..	..	7
(h) Pulm. tbc. sput. pos.	..	..	..	..	..	..	..	1	2	..	1	1	..	..	..	..	..	..	5
(i) Tbc. other organs. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(j) Suspected tbc. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(k) No. tuberculosis ..	61	68	75	76	36	65	30	77	120	198	52	111	43	58	7	30	10	23	1,140
(l) Diagnosis incomplete	4	1	3	0	..	..	1	5	1	1	..	2	..	1	2	2	..	2	25
VI. Type tbc.†																			
(a) Adult ..	..	..	..	..	..	..	..	..	3	2	1	2	..	1	2	..	..	..	11
(b) Childhold ..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1
(c) Undetermined ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

*Section V (a) and (b) includes those entered again under "Diagnosis" Section V (c)—(i).
†Section VI is a reclassification of Section V (g) and (h).

TUBERCULOSIS FIELD SURVEY, JAMAICA CENTRAL BOARD OF HEALTH.

Town............Kingston............Parish.........Kingston............Area..........Hannah Town.

Year.................1931.............Director of the Survey......Dr. C. W. Wells.

I.	No. of households surveyed during month	87
	(a) No. with all members tested negative to tuberculin ..	1
	(b) No. with one or more members reacting to tbn., no. X-ray exam.	None
	(c) No. with one or more members reacting to tbn, no. X-ray lesions	69
	(d) No. with one or more members with latent tuberculous lesions	11
	(e) No. with one or more members with pulmonary tbc. sputum neg.	5
	(f) No. with one or more members with pulmonary tbc. sputum pos.	1
II.	(a) Total persons examined during the month	224
	(b) Persons listed in the census but not examined	93

(Tabulate all persons listed in the census as follows).

Age	0—4		5—9		10—14		15—19		20—29		30—39		40—49		50—59		60		Total.
Sex.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
III. Persons with neither tbn test nor X-ray ex. ..	4	6	6	5	3	3	2	12	10	7	8	14	1	5	..	4	1	2	93
IV. Persons with tbn test only—																			
(a) Negative ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(b) Positive ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
V. Persons with both tbn test and X-ray exam. ..	8	13	15	14	12	17	12	19	18	35	9	12	6	13	1	9	5	6	224
* (a) Tbn test negative ..	3	8	6	5	4	4	1	2	..	2	..	1	1	..	..	..	..	1	38
* (b) Tbn test positive ..	5	5	9	9	8	13	11	17	18	33	9	11	5	13	1	9	5	5	186
(c) Pulm. nod (calcified)	..	..	..	..	..	..	..	1	..	2	..	..	..	..	..	..	1	..	4
(d) Pulm. infil. (child. type) ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(e) Tbc. tr. br. lym nodes																			
(1) Calcified ..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1
(2) Massive caseous	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(f) Latent apical tbc. ..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	1	3	1	7
(g) Pulm. tbc. put. neg	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	3	5
(h) Pulm. tbc. spu pos.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
(i) Tbc. other organs ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(j) Suspected tbc. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(k) No. tuberculosis ..	8	12	15	14	12	16	12	18	17	33	8	11	6	13	1	7	2	2	208
(l) Diagnosis incomplete	..	1	..	..	..	1	..	1	1	..	..	..	1	..	..	..	..	..	5
VI. Type tbc.†																			
(a) Adult ..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	1	..	3	6
(b) Childhood ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(c) Undetermined ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

*Section V (a) and (b) includes those entered again under "Diagnosis" Section V (c)—(i).
†Section VI is a reclassification of SectionV (g) and (h).

VIII. (Tabulate Households according to number of persons in each).

Persons in Household.	1	2—3	4—5	6—7	8—9	10—11	12	Total.
Households with Clin. Tbc. ..	2	11	1	2	1	1	0	18
Non. Tbc. Households ..	85	257	82	34	8	7	0	474

IX. (Tabulate Households according to number of persons per room).

Persons per room.	1.0-1.9	2.0-2.9	3.0-3.9	4.0-4.9	5.0-5.9	6.0-6.9	7.0	Total.
Households with Clin. Tbc. ..	2	10	3	0	2	0	1	18
Non Tbc. Households ..	96	161	119	45	24	14	14	474

VIII. (Tabulate Households according to number of persons in each).

Persons in Household.	1	2—3	4—5	6—7	8—9	10—11	12	Total.
Households with Clin. Tbc. ..	1	2	1	..	..	1	1	6
Non. Tbc. Households	9	41	19	6	2	3	1	81

IX. (Tabulate Households according to number of persons per room.)

Persons per room.	1.0-1.9	2.0-2.9	3.0-3.9	4.0-4.9	5.0-5.9	6.0.6.9	7.0	Total.
Households with Clin. Tbc. ..	2	3	..	..	1	..	..	6
Non Tbc. Households ..	17	34	14	8	6	1	1	81

IV.—PAROCHIAL HEALTH DEPATMENTS.

Parochial Health Departments growing out of the work started by the Hookworm Campaign health education, was brought to all parts of the Colony and has led to the inauguration of the various units of health activities. The latest and most advanced unit is that of Parochial Health Departments. On April 1st, 1930, as a result of the approval by the Legislative Council, a plan of Parochial Health Departments was inaugurated. This plan provides for a full time Health Officer with a staff and equipment for each parish for a full time Health Officer with a staff and equipment for each parish and up to the end of 1931, twelve of the fourteen parishes of the island has accepted the plan. The Health Officer, it may be stated, is selected and paid by the Central Government. To assist in demonstrating the practicability of such Health Departments the Rockefeller Foundation co-operated with the Government and the Parochial Broards in the organisation of demonstration departments in St. Mary, Trelawny, and St. Catherine. The Health Officers chosen for these Departments were given special training on Foundation Fellowships. The first Department was opened in St. Mary in October, 1928, the second in Trelawny in November, 1929, and the third in St. Catherine in December, 1930. The demonstration in each parish is to continue for three to four years, the object being to find the most effective methods of conducting health work in a Jamaica parish. The staff consists of the full-time Health Officer, an office clerk, a chief sanitary inspector and from 4 to 8 assistants. The first work undertaken by each department has been the control of infections. Prevention of typhoid is the most important item under this head and after this is the provision of sanitation and the installation of latrines which will control hookworm, dysentery and other bowel complaints. Public health education is conducted through lectures and demonstrations. School medical inspection is also given attention and treatment is provided for pupils with hookworm disease and dental defects, these being the common handicaps of school children. Correct records were kept of the work done in each parish and monthly reports made to the Local and Central Board of Health.

St. Mary Health Department:—In addition to the routine work this Department supervises the malaria control measures in the Oracabessa area. Tuberculosis and typhoid were the only infectious diseases of importance and these were met by the vaccination of contacts and the establishment of local dispensaries. A local laboratory is maintained and specimens of blood, sputum and faeces are examined. During 1930, special attention was paid to the improvements of water supplies. The sanitary inspectors made 42,913 inspections and caused 224 nuisances to be abated while 3,220 latrines were made sanitary.

Trelawny Health Department:—During more than half of the year this Department was engaged in work connected with the malaria epidemic in Falmouth. The staff in addition to their routine work, assisted in the treatment of the sick and in control measures. During the year they caused, 1,991 homes to be sanitated and made 28,584 inspections and abated 642 nuisances. Special attention was given to the examination of food handlers and markets. This Department demonstrated the great value of such an organisation in coping with an epidemic and has merited the approval given to it by the Parochial Board and the people of the parish.

St. Catherine Health Department:—This Department conducted the usual routine work laying stress upon health education and the control of epidemics. Investigations were made of all cases of Typhoid, Whooping Cough, Diphtheria and Scarlet Fever. The Health Officer gave 10,246 injections of anti-typhoid vaccine to 4,072 persons. Tuberculosis dispensaries were held in Spanish Town and Linstead and 85 cases of the disease located. Child hygiene work was begun in August and there is a nurse connected with the Department who gives half of her time to tuberculosis work and the remainder to child hygiene work. The 10 Sanitary Inspectors made 65,441 inspections and 5,441 latrines were made sanitary. There were 72 public lectures given during the year to an estimated audience of about 7,000.

V.—OTHER PUBLIC HEALTH WORK.

School Hygiene and Dental Clinics.—Dental Clinics were conducted in seven parishes: St. Andrew, Kingston, St. Mary, Trelawny, Clarendon, Hanover and St. James. During the year 149 schools were visited and 36,426 treatments were given to 13,979 pupils.

Bureau of Health Education:—The Bureau of Health Education continued as a clearing house for all of the units of co-operative work. Volume 6 of "Jamaica Public Health" was published during 1931 reaching a monthly circulation of 20,000 copies. The bulletin is used in the elementary schools of the island as a text in hygiene and its mailing list includes health workers in all parts of the world. The division of pre-natal work was continued. A revised edition of the nine pre-natal letters was issued and 4,203 letters were sent to 467 expectant mothers.

School for Sanitary Inspectors:—No session of the school for sanitary inspectors was held during 1931 since Parochial Boards already have trained inspectors for their more important districts. The next session will be held during the Autumn of 1932. The School has played an important part in the development of public health in Jamaica and during the past five years part-time officers have been largely replaced by full-time inspectors. Also it may be mentioned that the average pay received by sanitary inspectors is now more than double what it was five years ago.

The Improvement of Water Supplies.

In October, 1930, Sir William Morrison, who was at the time Commissioner of the Kingston and St. Andrew Corporation, made a request through the Government Medical Department to the Rockefeller Foundation to send an engineer to survey and report on the water plants of the City of Kingston. Mr. E. H. Magoon, of the Foundation's staff, arrived in the Colony on November 24, 1930, and remained until November 10, 1931, though he spent about two months of this period in Central America. During his stay in Jamaica, Mr. Magoon, aided by the engineering staff of the Corporation, made a study of the three filter plants and the water distribution system of the corporate area. In connection with this study important changes were made in the lay-out of the plants and their distribution mains; improvements were made toward the more effective use of chlorine in the sterilization of the water after filteration; meters for the accurate measurement of the filtered water were correctly installed; and better supervision, through better trained subordinate personnel, were among improvements made to ensure a safe water supply. As a result of these changes the routine bacteriological examinations of water samples show the supply now to be of good quality and safe.

In addition to the report of his study Mr. Magoon drew up plans giving details for further improvements which are necessary to put the Kingston water plants in first class condition. These will require changes at the filter plants and in the distribution system, also provision for storage. The changes and additions outlined in the plans will require a period of about three years for their completion.

On October 1, 1931, a newly elected Mayor and Council took over from Sir William Morrison the administration of the Corporation. This body considered and approved Mr. Magoon's report and plans at a special meeting.

In addition to the work in Kingston and St. Andrew, Mr. Magoon, upon the invitation of the parochial boards, surveyed and gave advice regarding improvements of the water supplies of Oracabessa in St. Mary, Spanish Town, Linstead, and Old Harbour in St. Catherine, and May Pen in Clarendon. He also visited Falmouth and suggested means by which the breeding of anopheline mosquitoes might be checked in the swamps about the town.